

# V by Crown

ESD Report  
BASIX Compliance

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**WSP**

Built Ecology

# Quality Management

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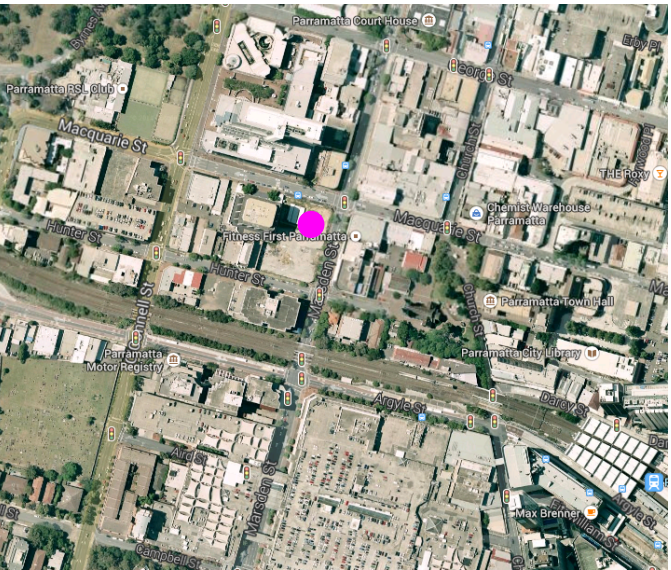
# 1. Introduction



The V by Crown development is located at 45 Macquarie Street; located in Parramatta CBD (refer to Figure 1). The development is located in the Parramatta Local Government Area. The development will consist of a commercial, residential and serviced apartments. There are approximately 600 dwellings currently proposed, including a mix of 1,2 and 3 bedroom dwellings.

The purpose of this report is to summarise the following:

- BASIX Certification Strategy and Inputs, including NatHERS thermal comfort modelling parameters; and
- Compliance with Section J for non-residential spaces



**Figure 1:** Location of V by Crown within the Parramatta City CBD context.

## Planning Requirements and ESD

The residential and serviced apartments of this development are required to comply against:

- BASIX—The Building Sustainability Index. This is an online tool which replaces relevant Parts of Section J Energy Efficiency of Volume Two of the National Construction Code (NCC) Series in New South Wales for Class 2 apartments.

The non-residential spaces of this development (namely ground floor retail, level 1 conference facilities and level 26 bar, etc) are required to comply against:

- Section J Energy Efficiency of Volume One of the National Construction Code (NCC) Series in New South Wales for Classes 2 to 9.

## BASIX

BASIX is an online tool that is used to rate the energy and water efficiency, and thermal comfort performance of residential dwellings in NSW. The tool sets minimum energy and water reduction targets, which must be met through the design of the building and the selection of energy and water efficient fixtures, fittings and appliances.

BASIX applies automatically to all new Class 1 and 2 buildings. Under Part A3.2 of Volume One of the NCC, the residential portion of V By Crown can be categorised as a Class 2 building; a building containing 2 or more sole-occupancy units each being a separate dwelling.

The serviced apartments within this development are Class 3 and would typically be assessed under Volume One of the National Construction Code. Under the Development Control Plan requirements of Parramatta City Council, Serviced apartments are to be assessed under BASIX and do not require assessment against the function requirements of Section J.

## Sources of Information

The following sources of information were used:

- DA architectural drawings by Allen Jack & Cottier, Drawing numbers A2000 (Issue DD), A2100 (Issue T), A2101 (Issue AA), A2102 (Issue W), A2103 (Issue R), A2104 (Issue V), A2112 (Issue T), A2117 (Issue B), A2118 (Issue C), A2119 (Issue C), A2120 (Issue C), A2126 (Issue S), A2128 (Issue S), A2130 (Issue L), A3101 (Issue M), A3102 (Issue P), A3111 (Issue E), A3112 (Issue K), A3113 (Issue G), A3114 (Issue M), A3201 (Issue G), A3202, (Issue K) A3211 (Issue T), A3212 (Issue H), A3213 (Issue F), A3214 (Issue F), A3215 (Issue D)
- The BASIX online tool and help notes: [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## 2. BASIX Certification Strategy and Inputs | Overview

### BASIX Overview

Section J of Volume One of the NCC requires that Class 2 buildings are subject to BASIX.

BASIX is a online tool designed to assess the potential performance of certain residential buildings against a range of sustainability indices, including water, thermal comfort and energy. The BASIX tool also calculates the maximum heating and cooling load benchmarks for the building. Commitments made under BASIX become a condition of the relevant development consent or complying development certificate.

### V by Crown

Four BASIX Certificates have been developed for V by Crown due to the number of apartments in the development. The certificates are aggregated based on Apartment types.

1. Certificate 1: Levels 1 to 7 inclusive; 157 apartments.
2. Certificate 2: Levels 8 to 13 inclusive; 158 apartments.
3. Certificate 3: Levels 14 to 20 inclusive; 166 apartments.
4. Certificate 4: Levels 21 to 28 inclusive; 109 apartments.

The BASIX benchmarks that apply to this development are:

- Energy—20% reduction below current practice the development
- Water—40% reduction below current practice for

the development

- Thermal comfort—Pass demonstrated via NatHERS modelling for all buildings

### Common Areas

Common areas (areas that service or can be used by occupants of more than one dwelling) for the development have been pro-rated according to the number of units on each BASIX Certificate.

Table 1: Common areas for residential use for each BASIX Certificate

Space Type	Room Names and/or References on Plans	Area (m <sup>2</sup> )	Certificate 1 (m <sup>2</sup> )	Certificate 2 (m <sup>2</sup> )	Certificate 3 (m <sup>2</sup> )	Certificate 4 (m <sup>2</sup> )
Site Area	Site Boundaries	4897.4	1303.37	1311.67	1378.08	904.88
Total Roof Area	Roof Terrace L19, Concrete Roof L28-30	3249	865	870	914	600
Non Residential Floor Area	B.13, G.18, G19, G.20, G.21, G.22, M.01, 1.31, 1.40, 1.26, 1.27, 1.28, 1.2926.31,	2908.6	773.98	778.91	818.35	537.35
Residential Car Spaces		489	130	131	138	90
Non-Residential Car Spaces		85	22	23	24	16
Gym & Associated Facilities	1.26, 1.60, 1.61, 1.62, 1.63	139.7	37.17	37.41	39.31	25.81
Basement Car Park Area	B1.01, B2.01, B3.01, B4.01, B5.01, B6.01	18467	4914.10	4945.40	5195.80	3411.70
Lift Motor Room	LMR.01, LMR 2	87.4	23.26	23.41	24.59	16.15
Switch Room	G.04	68.7	18.28	18.40	19.33	12.69
Substation	G.03	66.8	17.78	17.89	18.79	12.34
Residential Amenities	1.2, 1.21, 1.43, 2.36, 2.39, 2.42	357.1	95.02	95.63	100.47	65.97
Plant Rooms	B1.11, B1.12, M.08, M.12, 1.32, 1.33, 2.59	143.6	38.21	38.46	40.40	26.53
A/C Room	2.35, 2.38, 3.35, 3.36, (4.35-11.35)+(4.36-11.36)+(3.38-11.38) + (6.4*5, L12-16) + (L17-L18) + (L12-25)	490.8	130.60	131.43	138.09	90.67
Comms Room	B1.10, 1.51, 2.41, 3.41, (4.41-11.41), (L12-L25)	76.7	20.41	20.54	21.58	14.17
Basement Exhaust Fan Rooms	B1.07, B4.07	121.6	32.36	32.56	34.21	22.47
Basement Supply Fan Rooms	B1.06, B4.06	105.1	27.97	28.15	29.57	19.42
Store Rooms	B2.03, B3.03, M.03, M.09, M.10, M.11, M.13, M.14, M.15, M.16, M.17, M.18, 1.64, 1.22, 2.37, (3.37-11.37), (12.37-18.37)	324.7	86.40	86.95	91.36	59.99
Garbage Rooms	G.10, L2	169	44.97	45.26	47.55	31.22
Mail Room	G.09	24.6	6.55	6.59	6.92	4.54
Cleaner Room	G.52	10.2	2.71	2.73	2.87	1.88
Office Areas	G.08, M.02 and M.04	47.4	12.61	12.69	13.34	8.76
Luggage Rooms	G.02	8.3	2.21	2.22	2.34	1.53
Garbage/dirty Linen Rooms	G.35, 1.38, 2.34, 3.34, (4.34-11.34), L12-25	84.2	22.41	22.55	23.69	15.56
Toilets	M.05, M.06 and M.07	43.3	11.52	11.60	12.18	8.00
Ground Floor Lobby	G.01	386.8	102.93	103.58	108.83	71.46
S.A. Lobby	G.37	98	26.08	26.24	27.57	18.11
Lobbies/corridors On All Levels	B6-1.02, Mezzanine + L1 + L2 + (L3-L11) + (L12-L18) + (L19-L25) + (L26-L28)	5685.3	1512.87	1522.50	1599.59	1050.34



## 2. BASIX Certification Strategy and Inputs | Water

### Water Strategy for BASIX Certificate

#### Efficient Fixtures and Fittings

In order to maximise the water efficiency of the development, all fixtures in the proposed development are to meet the WELS (Water Efficiency Labelling Scheme) ratings detailed in Table 2.

**Table 2: Proposed WELS ratings for fixtures for BASIX Certificates.**

Fixture	Proposed WELS Ratings
Toilets	4 Star
Bathroom and Kitchen Taps	5 Star
Showers	3 Star (>7.5 but <=9 L/min)
Dishwashers	4 Star
Clothes Washers	4 Star
Common area taps	5 Star
Common area toilets	4 Star

There will also be a hot water recirculation system (continuous or timed) installed in all individual dwellings.

#### Landscaping

Potable water use reductions will be achieved through a water sensitive landscape and irrigation design.

- Native, indigenous plant species will be selected for a portion of communal and private garden areas. This will reduce or eliminate irrigation demands after establishment; facilitate potable water reductions, and provide ongoing cost and maintenance savings
- Landscape irrigation is required for all Garden Areas, using subsoil drip irrigation systems with moisture sensor override functionality are recommended to be used to minimise water consumption

There are no individual apartments that have private gardens/landscaping, as all garden areas are shared spaces.

**Table 3: Landscaping area allocation for each BASIX Certificate.**

Certificate	Garden Area	Indigenous or Low Water Use Species Area
Total	240m <sup>2</sup>	120m <sup>2</sup>
1	63.86m <sup>2</sup>	31.93m <sup>2</sup>
2	64.27m <sup>2</sup>	32.14m <sup>2</sup>
3	67.53m <sup>2</sup>	33.76m <sup>2</sup>
4	44.34m <sup>2</sup>	22.17m <sup>2</sup>

#### Swimming Pool and Spa

Swimming Pool volume calculated with an assumed average depth of 1.2metres.

Spa volume calculated with an assumed depth of 1.5metres

**Table 4: Pool and Spa parameters for BASIX Certificates.**

	Pool	Spa
Volume (kL)	200kL	16.5kL
Location	Outdoor, Level 1	Outdoor, Level 1
Shading	None	None
Heating Source	Gas and Electric Resistance	Gas and Electric Resistance
Pump Control	Timer	Timer

#### Alternative Water Supply

Further potable water use reductions are to be achieved through the use of a central rainwater tank. Water collected can be used in individual dwellings for toilets and laundry.

This alternative water supply can also be used in all landscaping irrigation.

**Table 5: Alternative water supply for BASIX Certificates.**

Central Rainwater Tank	
Roof Area Diverted to Tank	1200m <sup>2</sup>
Tank Size	50,000L
Overflow	Not diverted

### 3. BASIX Certificates Strategy and Inputs | Thermal Comfort

#### Thermal Comfort

##### NatHERS Modelling

Compliance with the thermal comfort requirements of BASIX is demonstrated via NatHERS thermal comfort modelling.

NatHERS modelling is conducted using approved software, such as BERS Pro 4.2. Each representative type of apartment is modelled to obtain heating and cooling loads, which are then entered into BASIX. In order to meet the heating and cooling load limits set by BASIX, the initiatives in Table 6 will be employed.

BERS Pro, produced by Solar Logic, has been used by WSP to carry out the NatHERS modelling. It has been developed as a residential thermal comfort rating tool and is accredited under the NatHERS Software Accreditation Protocol. Dwellings can achieve up to ten stars in relation to their thermal comfort performance.

User inputs, such as area uses, orientation, climate zone, building materials and air conditioning requirements are used to calculate heating and cooling loads for each apartment.

The models have accounted for the following:

- The overhang of any balconies above each apartment, built in as eaves
- Any shading from overshadowing buildings
- Any balcony walls between dwellings, built in as shading screens and wing walls

Modelling has been conducted with guidance under:

- BASIX Thermal Comfort Protocol (01/05/2013)

- NatHERS Technical Note 1 (2013)
- NatHERS Technical Note 2 + Addendum (2012)

##### Limitations

The results from the BERS Pro modelling shown within this report are limited in accuracy by the following factors:

- Actual energy consumption will also be dependent on the climate, occupants and their behaviour, which the software does not take into account
- Orientation and apartment layout being as shown on the drawings
- Construction parameters being as stated in Table 7.

### 3. BASIX Certificates Strategy and Inputs | Thermal Comfort

#### Thermal Comfort

Table 6: Modelling parameters for the NatHERS modelling

Building element	Description
Floor to ceiling height	<ul style="list-style-type: none"><li>2.7m</li></ul>
External walls	<ul style="list-style-type: none"><li>Tilt Concrete – lined - 200mm thickness; insulation in all external walls to provide <math>R_{total} 2.8 m^2.K/W</math></li></ul>
Party walls	<ul style="list-style-type: none"><li>Tilt Concrete – lined - 200mm thickness; insulation in all party walls to provide <math>R_{total} 2.1 m^2.K/W</math></li></ul>
Walls to lifts, stair wells, toilets, plant areas, etc.	<ul style="list-style-type: none"><li>Tilt Concrete – lined - 200mm thickness; insulation in all walls to provide <math>R_{total} 1.1 m^2.K/W</math></li></ul>
Internal wall between living/bedroom spaces	<ul style="list-style-type: none"><li>Cavity Panel; no insulation</li></ul>
Internal wall between living/bedroom spaces to bathroom/ensuite space	<ul style="list-style-type: none"><li>Cavity Panel; insulation in all walls to provide <math>R_{total} 1.5 m^2.K/W</math></li></ul>
Common area corridors	<ul style="list-style-type: none"><li>Power Panel; All external walls to common area corridors to be insulated to provide <math>R_{total} 2.8 m^2.K/W</math>.</li></ul>
Walls to corridors	<ul style="list-style-type: none"><li>Concrete block – lined; no insulation required</li></ul>
Skylights	No skylights modelled
Vented downlights	<ul style="list-style-type: none"><li>Vented downlights have been modelled for all apartments with a ceiling to roof, specifically:<ul style="list-style-type: none"><li>2.08, 21.10, 21.11, 21.12, 21.13, 21.14, 21.15, 21.16, 21.17, 28.01, 28.02, 28.03, 28.04, 28.05, 28.06, S18.01, S18.02, S18.03, S18.04, S18.05, S18.06, S18.07</li></ul></li></ul>
Doors	<ul style="list-style-type: none"><li>External: Solid core</li><li>Internal: Hollow core</li></ul>
Window coverings	<ul style="list-style-type: none"><li>Holland blinds*</li></ul>
Insect screens	<ul style="list-style-type: none"><li>Yes*</li></ul>
Ceiling fans	<ul style="list-style-type: none"><li>None</li></ul>

Building element	Description
Floors	<ul style="list-style-type: none"><li>Exposed suspended floors and floors above car park and plant areas - concrete with bulk insulation to achieve <math>R_{total} 1.0 m^2.K/W</math>, with the exception of apartment 3.01 which requires <math>R_{total} 2.3 m^2.K/W</math></li><li>Floor coverings - tiles for kitchens, bathrooms and corridors; carpet for bedrooms and living areas</li></ul>
Ceilings	<ul style="list-style-type: none"><li>Concrete with plasterboard</li><li>Bulk insulation to achieve <math>R_{total} 3.2 m^2.K/W</math>, for all apartments with a ceiling to the roof, specifically:<ul style="list-style-type: none"><li>2.08, 21.10, 21.11, 21.12, 21.13, 21.14, 21.15, 21.16, 21.17, 28.01, 28.02, 28.03, 28.04, 28.05, 28.06, S18.01, S18.02, S18.03, S18.04, S18.05, S18.06, S18.07</li></ul></li></ul>
Roofs	<ul style="list-style-type: none"><li>Concrete slab, medium colour</li><li>Roof, no cavity</li></ul>
Glazing type	<ul style="list-style-type: none"><li>Aluminium framed, heavy tint, <b>single glazing</b>. Provide the following whole of window parameters - U-value: 6.66   Solar Heat Gain Coefficient (SHGC): 0.28, unless stated otherwise (see below)</li><li>Aluminium framed <b>double glazing</b> for all sliding doors, provide the following whole of window parameters - U-value: 4.27   SHGC: 0.67; and aluminium framed, heavy tint, <b>double glazing</b> for all fixed windows, provide the following whole of window parameters - U-value: 4.22   SHGC: 0.29; this is required for the following apartments:<ul style="list-style-type: none"><li>2.08, 3.01, 3.02, 3.03, 3.04, 3.05, 3.06, 12.01, 21.10, 21.11, 21.12, 25.13, 21.14, 21.15, 21.16, 21.17, 26.01, 26.03, 27.01, 27.02, 27.03, 28.01, 28.02, 28.03, 28.04, 28.05, 28.06, S12.04, S17.04, S18.01, S18.02, S18.03, S18.05, S18.06, S18.07</li></ul></li><li>Aluminium framed <b>double glazing low E</b> for all sliding doors, provide the following whole of window parameters - U-value: 3.74   SHGC: 0.62; this is required for apartment S18.04 only.</li></ul>
Opening type and shading	<ul style="list-style-type: none"><li>Picture windows: fixed and awning</li><li>Sliding doors: sliding</li><li>Sliding windows: sliding</li></ul>



## 2. BASIX Certification Strategy and Inputs | Thermal Comfort

### NatHERS Modelling Results Continued

#### Results

In summary, the current design of the dwellings have achieved the minimum requirements of the thermal comfort section of BASIX. Their area corrected heating and cooling loads have been identified in Table 4.

Table 7: NatHERS Thermal Comfort results

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
1.01	90.99	0.00	38.50	17.30	5.5
1.02	41.23	0.00	42.90	12.40	5.5
1.03	41.23	0.00	38.20	15.00	5.5
1.04	87.19	0.00	34.90	9.30	6.5
1.05	87.19	0.00	34.50	8.90	6.5
1.06	41.23	0.00	43.00	12.30	5.5
1.07	41.23	0.00	38.20	15.00	5.5
1.08	86.36	0.00	48.60	15.90	5.0
2.01	90.99	0.00	47.90	15.70	5.0
2.02	41.23	0.00	42.90	12.40	5.5
2.03	41.23	0.00	38.20	15.00	5.5
2.04	87.19	0.00	34.90	9.30	6.5
2.05	87.19	0.00	34.50	8.90	6.5
2.06	41.23	0.00	43.00	12.30	5.5
2.07	41.23	0.00	38.20	15.00	5.5
2.08	86.36	0.00	60.00	14.60	4.5
2.09	55.03	0.00	64.40	11.80	4.0
2.10	47.21	0.00	40.00	31.40	4.5
3.01	59.34	0.00	64.20	6.50	4.5
3.02	90.60	0.00	60.70	6.20	4.5
3.03	77.30	0.00	51.70	7.50	5.0
3.04	54.95	0.00	62.00	6.30	4.5
3.05	54.03	0.00	41.80	8.00	6.0
3.06	93.30	0.00	41.00	5.20	6.0
3.07	54.38	0.00	37.50	9.80	6.0
3.08	57.11	0.00	43.90	9.40	5.5
3.09	90.80	0.00	20.70	12.10	7.0
3.10	90.84	0.00	20.70	12.70	7.0
3.11	90.84	0.00	29.80	12.90	6.5
3.12	61.80	0.00	36.70	10.50	6.0

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
3.13	61.80	0.00	39.20	9.80	6.0
3.14	61.80	0.00	34.70	9.20	6.5
3.15	61.80	0.00	51.00	11.20	5.0
3.16	55.03	0.00	64.40	11.80	4.0
3.17	47.21	0.00	40.00	31.40	4.5
4.01	59.34	0.00	64.20	6.50	4.5
4.02	90.60	0.00	60.70	6.20	4.5
4.03	77.30	0.00	51.70	7.50	5.0
4.04	54.95	0.00	62.00	6.30	4.5
4.05	54.03	0.00	41.80	8.00	6.0
4.06	93.30	0.00	41.00	5.20	6.0
4.07	54.38	0.00	54.30	11.60	5.0
4.08	57.11	0.00	42.90	8.80	5.5
4.09	85.40	0.00	47.00	6.60	5.5
4.10	85.40	0.00	42.70	7.00	6.0
4.11	85.40	0.00	54.10	6.40	5.0
4.12	61.80	0.00	36.70	10.50	6.0
4.13	61.80	0.00	39.20	9.80	6.0
4.14	61.80	0.00	34.70	9.20	6.5
4.15	61.80	0.00	51.00	11.20	5.0
4.16	55.03	0.00	64.40	11.80	4.0
4.17	47.21	0.00	40.00	31.40	4.5
5.01	59.34	0.00	64.20	6.50	4.5
5.02	90.60	0.00	60.70	6.20	4.5
5.03	77.30	0.00	51.70	7.50	5.0
5.04	54.95	0.00	62.00	6.30	4.5
5.05	54.03	0.00	41.80	8.00	6.0
5.06	93.30	0.00	41.00	5.20	6.0
5.07	54.38	0.00	54.30	11.60	5.0
5.08	57.11	0.00	42.90	8.80	5.5
5.09	85.40	0.00	47.00	6.60	5.5
5.10	85.40	0.00	42.70	7.00	6.0
5.11	85.40	0.00	54.10	6.40	5.0

3. BASIX Certificates Strategy and Inputs | Thermal Comfort

NatHERS Modelling Results Continued

Dwelling Numbers	Conditioned Area (m²)	Unconditioned Area (m²)	Heating Load (MJ/m²)	Cooling Load (MJ/m²)	Star Rating
5.12	61.80	0.00	36.70	10.50	6.0
5.13	61.80	0.00	39.20	9.80	6.0
5.14	61.80	0.00	34.70	9.20	6.5
5.15	61.80	0.00	51.00	11.20	5.0
5.16	55.03	0.00	64.40	11.80	4.0
5.17	47.21	0.00	40.00	31.40	4.5
6.01	59.34	0.00	64.20	6.50	4.5
6.02	90.60	0.00	60.70	6.20	4.5
6.03	77.30	0.00	51.70	7.50	5.0
6.04	54.95	0.00	62.00	6.30	4.5
6.05	54.03	0.00	41.80	8.00	6.0
6.06	93.30	0.00	41.00	5.20	6.0
6.07	54.38	0.00	54.30	11.60	5.0
6.08	57.11	0.00	42.90	8.80	5.5
6.09	85.40	0.00	47.00	6.60	5.5
6.10	85.40	0.00	42.70	7.00	6.0
6.11	85.40	0.00	54.10	6.40	5.0
6.12	61.80	0.00	36.70	10.50	6.0
6.13	61.80	0.00	39.20	9.80	6.0
6.14	61.80	0.00	34.70	9.20	6.5
6.15	61.80	0.00	51.00	11.20	5.0
6.16	55.03	0.00	64.40	11.80	4.0
6.17	47.21	0.00	40.00	31.40	4.5
7.01	59.34	0.00	64.20	6.50	4.5
7.02	90.60	0.00	60.70	6.20	4.5
7.03	77.30	0.00	51.70	7.50	5.0
7.04	54.95	0.00	62.00	6.30	4.5
7.05	54.03	0.00	41.80	8.00	6.0
7.06	93.30	0.00	41.00	5.20	6.0
7.07	54.38	0.00	54.30	11.60	5.0
7.08	57.11	0.00	42.90	8.80	5.5
7.09	85.40	0.00	47.00	6.60	5.5
7.10	85.40	0.00	42.70	7.00	6.0
7.11	85.40	0.00	54.10	6.40	5.0
7.12	61.80	0.00	36.70	10.50	6.0
7.13	61.80	0.00	39.20	9.80	6.0

Dwelling Numbers	Conditioned Area (m²)	Unconditioned Area (m²)	Heating Load (MJ/m²)	Cooling Load (MJ/m²)	Star Rating
7.14	61.80	0.00	34.70	9.20	6.5
7.15	61.80	0.00	51.00	11.20	5.0
7.16	55.03	0.00	64.40	11.80	4.0
7.17	47.21	0.00	40.00	31.40	4.5
8.01	59.34	0.00	64.20	6.50	4.5
8.02	90.60	0.00	60.70	6.20	4.5
8.03	77.30	0.00	51.70	7.50	5.0
8.04	54.95	0.00	62.00	6.30	4.5
8.05	54.03	0.00	41.80	8.00	6.0
8.06	93.30	0.00	41.00	5.20	6.0
8.07	54.38	0.00	54.30	11.60	5.0
8.08	57.11	0.00	42.90	8.80	5.5
8.09	85.40	0.00	47.00	6.60	5.5
8.10	85.40	0.00	42.70	7.00	6.0
8.11	85.40	0.00	54.10	6.40	5.0
8.12	61.80	0.00	36.70	10.50	6.0
8.13	61.80	0.00	39.20	9.80	6.0
8.14	61.80	0.00	34.70	9.20	6.5
8.15	61.80	0.00	51.00	11.20	5.0
8.16	55.03	0.00	64.40	11.80	4.0
8.17	47.21	0.00	40.00	31.40	4.5
9.01	59.34	0.00	64.20	6.50	4.5
9.02	90.60	0.00	60.70	6.20	4.5
9.03	77.30	0.00	51.70	7.50	5.0
9.04	54.95	0.00	62.00	6.30	4.5
9.05	54.03	0.00	41.80	8.00	6.0
9.06	93.30	0.00	41.00	5.20	6.0
9.07	54.38	0.00	54.30	11.60	5.0
9.08	57.11	0.00	42.90	8.80	5.5
9.09	85.40	0.00	47.00	6.60	5.5
9.10	85.40	0.00	42.70	7.00	6.0
9.11	85.40	0.00	54.10	6.40	5.0
9.12	61.80	0.00	36.70	10.50	6.0
9.13	61.80	0.00	39.20	9.80	6.0
9.14	61.80	0.00	34.70	9.20	6.5
9.15	61.80	0.00	51.00	11.20	5.0

3. BASIX Certificates Strategy and Inputs | Thermal Comfort

NatHERS Modelling Results Continued

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
9.16	55.03	0.00	64.40	11.80	4.0
9.17	47.21	0.00	40.00	31.40	4.5
10.01	59.34	0.00	64.20	6.50	4.5
10.02	90.60	0.00	60.70	6.20	4.5
10.03	77.30	0.00	51.70	7.50	5.0
10.04	54.95	0.00	62.00	6.30	4.5
10.05	54.03	0.00	41.80	8.00	6.0
10.06	93.30	0.00	41.00	5.20	6.0
10.07	54.38	0.00	54.30	11.60	5.0
10.08	57.11	0.00	42.90	8.80	5.5
10.09	85.40	0.00	47.00	6.60	5.5
10.10	85.40	0.00	42.70	7.00	6.0
10.11	85.40	0.00	54.10	6.40	5.0
10.12	61.80	0.00	36.70	10.50	6.0
10.13	61.80	0.00	39.20	9.80	6.0
10.14	61.80	0.00	34.70	9.20	6.5
10.15	61.80	0.00	51.00	11.20	5.0
10.16	55.03	0.00	64.40	11.80	4.0
10.17	47.21	0.00	40.00	31.40	4.5
11.01	59.34	0.00	64.20	6.50	4.5
11.02	90.60	0.00	60.70	6.20	4.5
11.03	77.30	0.00	51.70	7.50	5.0
11.04	54.95	0.00	62.00	6.30	4.5
11.05	54.03	0.00	41.80	8.00	6.0
11.06	93.30	0.00	41.00	5.20	6.0
11.07	54.38	0.00	54.30	11.60	5.0
11.08	57.11	0.00	42.90	8.80	5.5
11.09	85.40	0.00	47.00	6.60	5.5
11.10	85.40	0.00	42.70	7.00	6.0
11.11	85.40	0.00	54.10	6.40	5.0
11.12	61.80	0.00	36.70	10.50	6.0
11.13	61.80	0.00	39.20	9.80	6.0
11.14	61.80	0.00	34.70	9.20	6.5
11.15	61.80	0.00	51.00	11.20	5.0
11.16	55.03	0.00	64.40	11.80	4.0
11.17	47.21	0.00	40.00	31.40	4.5

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
12.01	59.34	0.00	55.30	7.80	5.0
12.02	90.59	0.00	49.00	6.60	5.5
12.03	77.28	0.00	58.10	8.70	4.5
12.04	54.95	0.00	56.70	7.10	5.0
12.05	54.03	0.00	58.40	9.50	4.5
12.06	93.33	0.00	64.90	5.60	4.5
12.07	54.38	0.00	54.30	11.60	5.0
12.08	57.11	0.00	42.90	8.80	5.5
12.09	85.36	0.00	51.00	6.50	5.5
12.10	85.36	0.00	46.70	6.70	5.5
12.11	85.36	0.00	58.40	6.60	5.0
12.12	61.78	0.00	42.30	10.20	5.5
12.13	61.78	0.00	43.90	9.20	5.5
12.14	61.78	0.00	39.40	8.80	6.0
12.15	61.78	0.00	56.30	10.90	4.5
12.16	45.90	0.00	26.90	31.20	5.0
12.17	45.90	0.00	36.30	29.00	5.0
13.01	59.34	0.00	55.30	7.80	5.0
13.02	90.59	0.00	49.00	6.60	5.5
13.03	77.28	0.00	58.10	8.70	4.5
13.04	54.95	0.00	56.70	7.10	5.0
13.05	54.03	0.00	58.40	9.50	4.5
13.06	93.33	0.00	64.90	5.60	4.5
13.07	54.38	0.00	54.30	11.60	5.0
13.08	57.11	0.00	42.90	8.80	5.5
13.09	85.36	0.00	51.00	6.50	5.5
13.10	85.36	0.00	46.70	6.70	5.5
13.11	85.36	0.00	58.40	6.60	5.0
13.12	61.78	0.00	42.30	10.20	5.5
13.13	61.78	0.00	43.90	9.20	5.5
13.14	61.78	0.00	39.40	8.80	6.0
13.15	61.78	0.00	56.30	10.90	4.5
13.16	45.90	0.00	26.90	31.20	5.0
13.17	45.90	0.00	36.30	29.00	5.0
14.01	59.34	0.00	55.30	7.80	5.0
14.02	90.59	0.00	49.00	6.60	5.5

3. BASIX Certificates Strategy and Inputs | Thermal Comfort

NatHERS Modelling Results Continued

Dwelling Numbers	Conditioned Area (m²)	Unconditioned Area (m²)	Heating Load (MJ/m²)	Cooling Load (MJ/m²)	Star Rating
14.03	77.28	0.00	58.10	8.70	4.5
14.04	54.95	0.00	56.70	7.10	5.0
14.05	54.03	0.00	58.40	9.50	4.5
14.06	93.33	0.00	64.90	5.60	4.5
14.07	54.38	0.00	54.30	11.60	5.0
14.08	57.11	0.00	42.90	8.80	5.5
14.09	85.36	0.00	51.00	6.50	5.5
14.10	85.36	0.00	46.70	6.70	5.5
14.11	85.36	0.00	58.40	6.60	5.0
14.12	61.78	0.00	42.30	10.20	5.5
14.13	61.78	0.00	43.90	9.20	5.5
14.14	61.78	0.00	39.40	8.80	6.0
14.15	61.78	0.00	56.30	10.90	4.5
14.16	45.90	0.00	26.90	31.20	5.0
14.17	45.90	0.00	36.30	29.00	5.0
15.01	59.34	0.00	55.30	7.80	5.0
15.02	90.59	0.00	49.00	6.60	5.5
15.03	77.28	0.00	58.10	8.70	4.5
15.04	54.95	0.00	56.70	7.10	5.0
15.05	54.03	0.00	58.40	9.50	4.5
15.06	93.33	0.00	64.90	5.60	4.5
15.07	54.38	0.00	54.30	11.60	5.0
15.08	57.11	0.00	42.90	8.80	5.5
15.09	85.36	0.00	51.00	6.50	5.5
15.10	85.36	0.00	46.70	6.70	5.5
15.11	85.36	0.00	58.40	6.60	5.0
15.12	61.78	0.00	42.30	10.20	5.5
15.13	61.78	0.00	43.90	9.20	5.5
15.14	61.78	0.00	39.40	8.80	6.0
15.15	61.78	0.00	56.30	10.90	4.5
15.16	45.90	0.00	26.90	31.20	5.0
15.17	45.90	0.00	36.30	29.00	5.0
16.01	59.34	0.00	55.30	7.80	5.0
16.02	90.59	0.00	49.00	6.60	5.5
16.03	77.28	0.00	58.10	8.70	4.5
16.04	54.95	0.00	56.70	7.10	5.0

Dwelling Numbers	Conditioned Area (m²)	Unconditioned Area (m²)	Heating Load (MJ/m²)	Cooling Load (MJ/m²)	Star Rating
16.05	54.03	0.00	58.40	9.50	4.5
16.06	93.33	0.00	64.90	5.60	4.5
16.07	54.38	0.00	54.30	11.60	5.0
16.08	57.11	0.00	42.90	8.80	5.5
16.09	85.36	0.00	51.00	6.50	5.5
16.10	85.36	0.00	46.70	6.70	5.5
16.11	85.36	0.00	58.40	6.60	5.0
16.12	61.78	0.00	42.30	10.20	5.5
16.13	61.78	0.00	43.90	9.20	5.5
16.14	61.78	0.00	39.40	8.80	6.0
16.15	61.78	0.00	56.30	10.90	4.5
16.16	45.90	0.00	26.90	31.20	5.0
16.17	45.90	0.00	36.30	29.00	5.0
17.01	59.34	0.00	55.30	7.80	5.0
17.02	90.59	0.00	49.00	6.60	5.5
17.03	77.28	0.00	58.10	8.70	4.5
17.04	54.95	0.00	56.70	7.10	5.0
17.05	54.03	0.00	58.40	9.50	4.5
17.06	93.33	0.00	64.90	5.60	4.5
17.07	54.38	0.00	54.30	11.60	5.0
17.08	57.11	0.00	42.90	8.80	5.5
17.09	85.36	0.00	51.00	6.50	5.5
17.10	85.36	0.00	46.70	6.70	5.5
17.11	85.36	0.00	58.40	6.60	5.0
17.12	61.78	0.00	42.30	10.20	5.5
17.13	61.78	0.00	43.90	9.20	5.5
17.14	61.78	0.00	39.40	8.80	6.0
17.15	61.78	0.00	56.30	10.90	4.5
17.16	45.90	0.00	26.90	31.20	5.0
17.17	45.90	0.00	36.30	29.00	5.0
18.01	59.34	0.00	55.30	7.80	5.0
18.02	90.59	0.00	49.00	6.60	5.5
18.03	77.28	0.00	58.10	8.70	4.5
18.04	54.95	0.00	56.70	7.10	5.0
18.05	54.03	0.00	58.40	9.50	4.5
18.06	93.30	0.00	37.00	6.40	6.5



### 3. BASIX Certificates Strategy and Inputs | Thermal Comfort

#### NatHERS Modelling Results Continued

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
18.07	54.38	0.00	54.30	11.60	5.0
18.08	57.11	0.00	42.90	8.80	5.5
18.09	85.36	0.00	51.00	6.50	5.5
18.10	85.36	0.00	46.70	6.70	5.5
18.11	85.36	0.00	58.40	6.60	5.0
18.12	42.00	0.00	32.50	29.40	5.0
18.13	45.90	0.00	26.90	31.20	5.0
19.01	59.34	0.00	55.30	7.80	5.0
19.02	90.59	0.00	49.00	6.60	5.5
19.03	77.28	0.00	58.10	8.70	4.5
19.04	54.95	0.00	56.70	7.10	5.0
19.05	54.03	0.00	58.40	9.50	4.5
19.06	93.30	0.00	37.00	6.40	6.5
19.07	54.38	0.00	54.30	11.60	5.0
19.08	57.11	0.00	42.90	8.80	5.5
19.09	85.36	0.00	51.00	6.50	5.5
19.10	85.36	0.00	46.70	6.70	5.5
19.11	85.36	0.00	58.40	6.60	5.0
19.12	61.78	0.00	42.30	10.20	5.5
19.13	61.78	0.00	43.90	9.20	5.5
19.14	61.78	0.00	39.40	8.80	6.0
19.15	61.78	0.00	56.30	10.90	4.5
19.16	76.50	0.00	53.10	10.60	5.0
19.17	45.90	0.00	26.90	31.20	5.0
19.18	45.90	0.00	36.30	29.00	5.0
20.01	59.34	0.00	55.30	7.80	5.0
20.02	90.59	0.00	49.00	6.60	5.5
20.03	77.28	0.00	58.10	8.70	4.5
20.04	54.95	0.00	56.70	7.10	5.0
20.05	54.03	0.00	58.40	9.50	4.5
20.06	93.30	0.00	37.00	6.40	6.5
20.07	54.38	0.00	54.30	11.60	5.0
20.08	57.11	0.00	42.90	8.80	5.5
20.09	85.36	0.00	51.00	6.50	5.5
20.10	85.36	0.00	46.70	6.70	5.5
20.11	85.36	0.00	58.40	6.60	5.0

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
20.12	61.78	0.00	42.30	10.20	5.5
20.13	61.78	0.00	43.90	9.20	5.5
20.14	61.78	0.00	39.40	8.80	6.0
20.15	61.78	0.00	56.30	10.90	4.5
20.16	76.50	0.00	53.10	10.60	5.0
20.17	45.90	0.00	26.90	31.20	5.0
20.18	45.90	0.00	36.30	29.00	5.0
21.01	59.34	0.00	56.10	8.10	5.0
21.02	90.59	0.00	50.40	6.60	5.5
21.03	77.28	0.00	59.70	8.50	4.5
21.04	106.50	0.00	40.50	8.00	6.0
21.05	93.30	0.00	37.00	6.40	6.5
21.06	106.30	0.00	47.90	12.50	5.0
21.07	85.36	0.00	52.80	6.10	5.0
21.08	85.36	0.00	48.40	6.60	5.5
21.09	85.36	0.00	60.20	6.60	4.5
21.10	61.78	0.00	58.90	10.70	4.5
21.11	61.78	0.00	65.90	8.50	4.5
21.12	61.78	0.00	60.20	9.10	4.5
21.13	61.78	0.00	54.50	10.70	5.0
21.14	48.80	0.00	63.20	9.00	4.5
21.15	81.10	0.00	46.70	10.10	5.5
21.16	45.86	0.00	62.40	31.70	3.5
21.17	45.86	0.00	64.70	28.10	3.5
22.01	59.34	0.00	56.10	8.10	5.0
22.02	90.59	0.00	50.40	6.60	5.5
22.03	77.28	0.00	59.70	8.50	4.5
22.04	106.50	0.00	40.50	8.00	6.0
22.05	93.30	0.00	37.00	6.40	6.5
22.06	106.30	0.00	47.90	12.50	5.0
22.07	85.36	0.00	52.80	6.10	5.0
22.08	85.36	0.00	48.40	6.60	5.5
22.09	85.36	0.00	60.20	6.60	4.5
22.10	61.78	0.00	58.90	10.70	4.5
22.11	61.78	0.00	65.90	8.50	4.5
22.12	61.78	0.00	60.20	9.10	4.5



### 3. BASIX Certificates Strategy and Inputs | Thermal Comfort

#### NatHERS Modelling Results Continued

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
22.13	61.78	0.00	54.50	10.70	5.0
22.14	48.80	0.00	63.20	9.00	4.5
22.15	81.10	0.00	46.70	10.10	5.5
22.16	45.86	0.00	62.40	31.70	3.5
22.17	45.86	0.00	64.70	28.10	3.5
23.01	59.34	0.00	56.10	8.10	5.0
23.02	90.59	0.00	50.40	6.60	5.5
23.03	77.28	0.00	59.70	8.50	4.5
23.04	106.50	0.00	40.50	8.00	6.0
23.05	93.30	0.00	37.00	6.40	6.5
23.06	106.30	0.00	47.90	12.50	5.0
23.07	85.36	0.00	52.80	6.10	5.0
23.08	85.36	0.00	48.40	6.60	5.5
23.09	85.36	0.00	60.20	6.60	4.5
23.10	61.78	0.00	58.90	10.70	4.5
23.11	61.78	0.00	65.90	8.50	4.5
23.12	61.78	0.00	60.20	9.10	4.5
23.13	61.78	0.00	54.50	10.70	5.0
23.14	48.80	0.00	63.20	9.00	4.5
23.15	81.10	0.00	46.70	10.10	5.5
23.16	45.86	0.00	62.40	31.70	3.5
23.17	45.86	0.00	64.70	28.10	3.5
24.01	59.34	0.00	56.10	8.10	5.0
24.02	90.59	0.00	50.40	6.60	5.5
24.03	77.28	0.00	59.70	8.50	4.5
24.04	106.50	0.00	40.50	8.00	6.0
24.05	93.30	0.00	37.00	6.40	6.5
24.06	106.30	0.00	47.90	12.50	5.0
24.07	85.36	0.00	52.80	6.10	5.0
24.08	85.36	0.00	48.40	6.60	5.5
24.09	85.36	0.00	60.20	6.60	4.5
24.10	61.78	0.00	58.90	10.70	4.5
24.11	61.78	0.00	65.90	8.50	4.5
24.12	61.78	0.00	60.20	9.10	4.5
24.13	61.78	0.00	54.50	10.70	5.0
24.14	48.80	0.00	63.20	9.00	4.5

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
24.15	81.10	0.00	46.70	10.10	5.5
24.16	45.86	0.00	62.40	31.70	3.5
24.17	45.86	0.00	64.70	28.10	3.5
25.01	59.34	0.00	56.10	8.10	5.0
25.02	90.59	0.00	50.40	6.60	5.5
25.03	77.28	0.00	59.70	8.50	4.5
25.04	106.50	0.00	40.50	8.00	6.0
25.05	93.30	0.00	37.00	6.40	6.5
25.06	106.30	0.00	47.90	12.50	5.0
25.07	85.36	0.00	52.80	6.10	5.0
25.08	85.36	0.00	48.40	6.60	5.5
25.09	85.36	0.00	60.20	6.60	4.5
25.10	61.78	0.00	58.90	10.70	4.5
25.11	61.78	0.00	65.90	8.50	4.5
25.12	61.78	0.00	60.20	9.10	4.5
25.13	61.78	0.00	49.10	9.40	5.0
25.14	48.80	0.00	63.20	9.00	4.5
25.15	81.10	0.00	46.70	10.10	5.5
25.16	45.86	0.00	62.40	31.70	3.5
25.17	45.86	0.00	64.70	28.10	3.5
26.01	51.90	0.00	45.30	10.20	5.5
26.02	76.30	0.00	52.70	9.80	5.0
26.03	64.70	0.00	45.80	12.70	5.0
26.04	107.40	0.00	43.70	8.20	5.5
26.05	93.30	0.00	37.00	6.40	6.5
26.06	106.30	0.00	47.90	12.50	5.0
26.07	73.90	0.00	44.90	8.40	5.5
26.08	73.90	0.00	45.20	9.50	5.5
26.09	73.90	0.00	54.90	9.60	5.0
27.01	51.90	0.00	59.20	10.50	4.5
27.02	76.30	0.00	36.60	10.90	6.0
27.03	64.70	0.00	61.80	13.90	4.0
27.04	105.20	0.00	29.90	10.90	6.5
27.05	90.50	0.00	20.20	7.70	7.5
27.06	104.37	0.00	35.60	30.80	4.5
27.07	73.90	0.00	34.60	8.70	6.5

### 3. BASIX Certificates Strategy and Inputs | Thermal Comfort

#### NatHERS Modelling Results Continued

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
27.08	73.90	0.00	34.30	10.10	6.5
27.09	73.90	0.00	44.30	10.00	5.5
28.01	73.86	0.00	56.80	12.70	4.5
28.02	73.86	0.00	51.70	13.70	4.5
28.03	73.86	0.00	50.00	11.00	5.0
28.04	184.80	0.00	35.80	17.20	5.5
28.05	157.90	0.00	24.40	8.20	7.0
28.06	178.00	0.00	34.00	16.70	6.0
S10.01	43.92	0.00	29.90	15.20	6.0
S10.02	61.63	0.00	40.60	8.70	6.0
S10.03	61.30	0.00	48.50	8.50	5.5
S10.04	52.17	0.00	58.20	9.70	4.5
S10.05	41.64	0.00	30.70	27.30	5.0
S10.06	50.92	0.00	46.80	12.30	5.0
S10.07	53.42	0.00	16.70	13.00	7.5
S10.08	53.42	0.00	18.00	13.00	7.5
S10.09	68.84	0.00	63.50	10.30	4.5
S11.01	43.92	0.00	29.90	15.20	6.0
S11.02	61.63	0.00	40.60	8.70	6.0
S11.03	61.30	0.00	48.50	8.50	5.5
S11.04	52.17	0.00	58.20	9.70	4.5
S11.05	41.64	0.00	30.70	27.30	5.0
S11.06	50.92	0.00	46.80	12.30	5.0
S11.07	53.42	0.00	16.70	13.00	7.5
S11.08	53.42	0.00	18.00	13.00	7.5
S11.09	68.84	0.00	63.50	10.30	4.5
S12.01	43.92	0.00	38.20	9.70	6.0
S12.02	61.63	0.00	49.50	6.80	5.5
S12.03	61.30	0.00	58.20	7.50	5.0
S12.04	52.17	0.00	37.00	7.70	6.5
S12.05	41.64	0.00	37.90	22.50	5.0
S12.06	50.92	0.00	55.40	10.00	5.0
S12.07	53.42	0.00	24.50	10.00	7.0
S12.08	53.42	0.00	25.60	10.50	7.0
S12.09	50.00	0.00	44.40	10.50	5.5
S12.10	42.00	0.00	32.50	29.40	5.0

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
S13.01	43.92	0.00	38.20	9.70	6.0
S13.02	61.63	0.00	49.50	6.80	5.5
S13.03	61.30	0.00	58.20	7.50	5.0
S13.04	52.17	0.00	37.00	7.70	6.5
S13.05	41.64	0.00	37.90	22.50	5.0
S13.06	50.92	0.00	55.40	10.00	5.0
S13.07	53.42	0.00	24.50	10.00	7.0
S13.08	53.42	0.00	25.60	10.50	7.0
S13.09	50.00	0.00	44.40	10.50	5.5
S13.10	42.00	0.00	32.50	29.40	5.0
S14.01	43.92	0.00	38.20	9.70	6.0
S14.02	61.63	0.00	49.50	6.80	5.5
S14.03	61.30	0.00	58.20	7.50	5.0
S14.04	52.17	0.00	37.00	7.70	6.5
S14.05	41.64	0.00	37.90	22.50	5.0
S14.06	50.92	0.00	55.40	10.00	5.0
S14.07	53.42	0.00	24.50	10.00	7.0
S14.08	53.42	0.00	25.60	10.50	7.0
S14.09	50.00	0.00	44.40	10.50	5.5
S14.10	42.00	0.00	32.50	29.40	5.0
S15.01	43.92	0.00	38.20	9.70	6.0
S15.02	61.63	0.00	49.50	6.80	5.5
S15.03	61.30	0.00	58.20	7.50	5.0
S15.04	52.17	0.00	37.00	7.70	6.5
S15.05	41.64	0.00	37.90	22.50	5.0
S15.06	50.92	0.00	55.40	10.00	5.0
S15.07	53.42	0.00	24.50	10.00	7.0
S15.08	53.42	0.00	25.60	10.50	7.0
S15.09	50.00	0.00	44.40	10.50	5.5
S15.10	42.00	0.00	32.50	29.40	5.0
S16.01	43.92	0.00	38.20	9.70	6.0
S16.02	61.63	0.00	49.50	6.80	5.5
S16.03	61.30	0.00	58.20	7.50	5.0
S16.04	52.17	0.00	37.00	7.70	6.5
S16.05	41.64	0.00	37.90	22.50	5.0
S16.06	50.92	0.00	55.40	10.00	5.0

### 3. BASIX Certificates Strategy and Inputs | Thermal Comfort

#### NatHERS Modelling Results Continued

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
S16.07	53.42	0.00	24.50	10.00	7.0
S16.08	53.42	0.00	25.60	10.50	7.0
S16.09	50.00	0.00	44.40	10.50	5.5
S16.10	42.00	0.00	32.50	29.40	5.0
S17.01	43.92	0.00	38.20	9.70	6.0
S17.02	61.63	0.00	49.50	6.80	5.5
S17.03	61.30	0.00	58.20	7.50	5.0
S17.04	77.60	0.00	44.10	7.60	5.5
S17.05	50.92	0.00	56.20	10.00	4.5
S17.06	53.42	0.00	24.50	10.00	7.0
S17.07	53.42	0.00	25.60	10.50	7.0
S17.09	50.00	0.00	44.40	10.50	5.5
S17.09	42.00	0.00	32.50	29.40	5.0
S18.01	43.92	0.00	48.40	7.90	5.5
S18.02	61.63	0.00	58.20	6.10	5.0
S18.03	61.30	0.00	66.00	6.70	4.5
S18.04	77.62	0.00	64.70	9.50	4.5
S18.05	53.42	0.00	42.10	10.60	5.5
S18.06	53.42	0.00	43.40	10.60	5.5
S18.07	49.97	0.00	57.50	10.60	4.5
S18.08	42.00	0.00	32.50	29.40	5.0
S18.09	118.20	0.00	30.60	14.10	6.5
S18.10	116.60	0.00	36.50	13.30	6.0
S2.01	43.92	0.00	29.90	15.20	6.0
S2.02	61.63	0.00	40.60	8.70	6.0
S2.03	61.30	0.00	48.50	8.50	5.5
S2.04	52.17	0.00	58.20	9.70	4.5
S2.05	41.64	0.00	30.70	27.30	5.0
S2.06	50.92	0.00	46.80	12.30	5.0
S2.07	53.42	0.00	16.70	13.00	7.5
S2.08	53.42	0.00	18.00	13.00	7.5
S2.09	68.84	0.00	63.50	10.30	4.5
S3.01	43.92	0.00	29.90	15.20	6.0
S3.02	61.63	0.00	40.60	8.70	6.0
S3.03	61.30	0.00	48.50	8.50	5.5
S3.04	52.17	0.00	58.20	9.70	4.5

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
S3.05	41.64	0.00	30.70	27.30	5.0
S3.06	50.92	0.00	46.80	12.30	5.0
S3.07	53.42	0.00	16.70	13.00	7.5
S3.08	53.42	0.00	18.00	13.00	7.5
S3.09	68.84	0.00	63.50	10.30	4.5
S4.01	43.92	0.00	29.90	15.20	6.0
S4.02	61.63	0.00	40.60	8.70	6.0
S4.03	61.30	0.00	48.50	8.50	5.5
S4.04	52.17	0.00	58.20	9.70	4.5
S4.05	41.64	0.00	30.70	27.30	5.0
S4.06	50.92	0.00	46.80	12.30	5.0
S4.07	53.42	0.00	16.70	13.00	7.5
S4.08	53.42	0.00	18.00	13.00	7.5
S4.09	68.84	0.00	63.50	10.30	4.5
S5.01	43.92	0.00	29.90	15.20	6.0
S5.02	61.63	0.00	40.60	8.70	6.0
S5.03	61.30	0.00	48.50	8.50	5.5
S5.04	52.17	0.00	58.20	9.70	4.5
S5.05	41.64	0.00	30.70	27.30	5.0
S5.06	50.92	0.00	46.80	12.30	5.0
S5.07	53.42	0.00	16.70	13.00	7.5
S5.08	53.42	0.00	18.00	13.00	7.5
S5.09	68.84	0.00	63.50	10.30	4.5
S6.01	43.92	0.00	29.90	15.20	6.0
S6.02	61.63	0.00	40.60	8.70	6.0
S6.03	61.30	0.00	48.50	8.50	5.5
S6.04	52.17	0.00	58.20	9.70	4.5
S6.05	41.64	0.00	30.70	27.30	5.0
S6.06	50.92	0.00	46.80	12.30	5.0
S6.07	53.42	0.00	16.70	13.00	7.5
S6.08	53.42	0.00	18.00	13.00	7.5
S6.09	68.84	0.00	63.50	10.30	4.5
S7.01	43.92	0.00	29.90	15.20	6.0
S7.02	61.63	0.00	40.60	8.70	6.0
S7.03	61.30	0.00	48.50	8.50	5.5
S7.04	52.17	0.00	58.20	9.70	4.5

### 3. BASIX Certificates Strategy and Inputs | Thermal Comfort

#### NatHERS Modelling Results Continued

Dwelling Numbers	Conditioned Area (m <sup>2</sup> )	Unconditioned Area (m <sup>2</sup> )	Heating Load (MJ/m <sup>2</sup> )	Cooling Load (MJ/m <sup>2</sup> )	Star Rating
S7.05	41.64	0.00	30.70	27.30	5.0
S7.06	50.92	0.00	46.80	12.30	5.0
S7.07	53.42	0.00	16.70	13.00	7.5
S7.08	53.42	0.00	18.00	13.00	7.5
S7.09	68.84	0.00	63.50	10.30	4.5
S8.01	43.92	0.00	29.90	15.20	6.0
S8.02	61.63	0.00	40.60	8.70	6.0
S8.03	61.30	0.00	48.50	8.50	5.5
S8.04	52.17	0.00	58.20	9.70	4.5
S8.05	41.64	0.00	30.70	27.30	5.0
S8.06	50.92	0.00	46.80	12.30	5.0
S8.07	53.42	0.00	16.70	13.00	7.5
S8.08	53.42	0.00	18.00	13.00	7.5
S8.09	68.84	0.00	63.50	10.30	4.5
S9.01	43.92	0.00	29.90	15.20	6.0
S9.02	61.63	0.00	40.60	8.70	6.0
S9.03	61.30	0.00	48.50	8.50	5.5
S9.04	52.17	0.00	58.20	9.70	4.5
S9.05	41.64	0.00	30.70	27.30	5.0
S9.06	50.92	0.00	46.80	12.30	5.0
S9.07	53.42	0.00	16.70	13.00	7.5
S9.08	53.42	0.00	18.00	13.00	7.5
S9.09	68.84	0.00	63.50	10.30	4.5

## 4. BASIX Certification Strategy and Inputs | Energy

### Energy Strategy for BASIX Certificate

#### Energy Initiatives for Common Areas

Energy consumption in multi-unit residential buildings is heavily influenced by the utilisation and servicing of the common areas. HVAC and artificial lighting systems in car parks, lobbies and common corridors need to be carefully designed to reduce energy demands.

For V by Crown, the energy initiatives currently proposed for the common areas are summarised in Table 8.

The current energy initiatives do not satisfy the requirements for a pass in BASIX. A compliance pathway has been developed and initiatives that are required to pass BASIX Energy is summarised in Table 11.

#### Pool and Spa

Heating source: Gas to 65 degrees with electric resistance to 80 degrees.

#### Other

- No building management system (BMS) to be installed.
- Active power factor correction (PFC) to be installed.
- No common area clothes drying line, electric/gas clothes dryer or clothes washers to be installed.

Table 8: Common Area Energy Initiatives for V By Crown

Space Type	Common Area Ventilation	Ventilation Efficiency Measure (Operation Control)	Common Area Lighting	Lighting Efficiency Measure (Operation Control)
Gym & Associated Facilities	Air Conditioning System	Time Clock or BMS Controlled	Fluorescent	Zoned Switching
Basement Car Park Area	Ventilation (Supply + Exhaust)	Carbon Monoxide Monitor + VSD Fan	Fluorescent	Zoned Switching
Lift Motor Room	Ventilation (Exhaust Only)	None (Continuous)	Fluorescent	Manual On/Off Switch
Lifts (No. 1-6)	No Mechanical Ventilation	N/A	Light-Emitting-Diode	Connected to Lift Call Button
Switch Room	Ventilation (Exhaust Only)	None (Continuous)	Fluorescent	Manual On/Off Switch
Substation	Ventilation (Exhaust Only)	None (Continuous)	Fluorescent	Manual On/Off Switch
Residential Amenities	Air Conditioning System	Time Clock or BMS Controlled	Compact Fluorescent	Zoned Switching
Plant Rooms	Ventilation (Exhaust Only)	None (Continuous)	Fluorescent	Manual On/Off Switch
A/C Room	No Mechanical Ventilation	None (Continuous)	Fluorescent	Manual On/Off Switch
Comms Room	Air Conditioning System	None (Continuous)	Fluorescent	Manual On/Off Switch
Basement Exhaust Fan Rooms	Ventilation (Exhaust Only)	Carbon Monoxide Monitor + VSD Fan	Fluorescent	Manual On/Off Switch
Basement Supply Fan Rooms	Ventilation (Supply Only)	Carbon Monoxide Monitor + VSD Fan	Fluorescent	Manual On/Off Switch
Store Rooms	No Mechanical Ventilation	N/A	Fluorescent	Zoned Switching
Garbage Rooms	Ventilation (Exhaust Only)	None (Continuous)	Fluorescent	Manual On/Off Switch
Mail Room	No Mechanical Ventilation	N/A	Fluorescent	Time Clocks
Cleaner Room	No Mechanical Ventilation	N/A	Fluorescent	Manual On/Off Switch
Office Areas	Air Conditioning System	None (Continuous)	Fluorescent	Zoned Switching
Luggage Rooms	No Mechanical Ventilation	N/A	Fluorescent	Manual On/Off Switch
Garbage/dirty Linen Rooms	Ventilation (Exhaust Only)	None (Continuous)	Fluorescent	Manual On/Off Switch
Toilets	Ventilation (Supply + Exhaust)	Time Clock or BMS Controlled	Compact Fluorescent	Motion Sensors
Ground Floor Lobby	Air Conditioning System	None (Continuous)	Fluorescent	Time Clocks
S.A. Lobby	Air Conditioning System	None (Continuous)	Fluorescent	Time Clocks
Lobbies/corridors On All Levels	Ventilation (Supply Only)	None (Continuous)	Compact Fluorescent	Time Clocks



## 4. BASIX Certification Strategy and Inputs | Energy

### Energy Strategy for BASIX Certificate

#### Energy Initiatives for Dwellings

The appliances, lighting and HVAC systems used in the dwellings also needs to be carefully considered to reduce energy use.

For V by Crown, the energy initiatives for individual dwellings currently proposed are summarised in Table 9.

Table 9: Individual Dwelling Energy Initiatives for V by Crown

Energy Item	Strategy
Central DHW heating system	Gas-fired boiler. R0.6 (~25mm) piping insulation.
Appliances	All appliances to meet the following Energy Star ratings: <ul style="list-style-type: none"><li>Cooktops - Gas (for residential apartments only); Serviced apartments to have Electric Cooktops</li><li>Ovens - Electric</li><li>Refrigerators - None specified</li><li>Dishwashers - 3.5 star</li><li>Clothes washers - 3 star</li><li>Clothes dryers - 2.0 star</li></ul> <i>Ventilated fridge space to be included.</i>
Heating and cooling	There is no centralised heating and cooling plant. 1-phase air-conditioning / EER 3.0-3.5 (cooling) and COP 3.5-4.0 (heating) in all living and bedroom areas.
Lighting (apartments)	Dedicated fluorescent or LED lamps in all bedrooms, living areas, kitchens, bathrooms/toilets, laundry and hallways.
Ventilation (apartments)	<ul style="list-style-type: none"><li>Bathroom ventilation - individual fan, ducted to roof or façade . Interlocked to light.</li><li>Laundry ventilation - individual fan, ducted to roof or façade. Manual switch on/off</li><li>Kitchen ventilation - Individual fan. Manual switch on/off.</li></ul>

Table 10: Lift Energy Initiatives for V By Crown

Lift Number	1	2	3	4	5	Service Lift
Number of floors served (including basement)	36	36	36	36	30	30
System Type	<i>Gearless traction with VVVF motor</i>	<i>Gearless traction with VVVF motor</i>	<i>Gearless traction with VVVF motor</i>	<i>Gearless traction with VVVF motor</i>	<i>Gearless traction with VVVF motor</i>	<i>Gearless traction with VVVF motor</i>

## 4. BASIX Certification Strategy and Inputs | Energy

### Compliance Pathway for BASIX Energy

#### Options towards Compliance

Table 11 summarises the initiatives to improve the energy section of the BASIX Certificate to achieve compliance.

Table 11: Compliance Pathway for BASIX Energy

Energy Item	Strategy	BASIX Certificate 1	BASIX Certificate 2	BASIX Certificate 3	BASIX Certificate 4
Baseline Energy Score		13/20	12/20	13/20	12/20
Initiative 1	Increase internal pipe insulation from R0.6 to R1.0 (25mm -> 38mm). +	20/20	20/20	20/20	20/20
Initiative 2	Include thermostatic controls to Lift Motor room, plant room and control ventilation within the hallways and lobbies to a time clock. +				
Initiative 3	Install fridges to serviced apartments with a 3.0 Star Energy Star rating +				
Initiative 4	Install motion detectors to car park basement lighting +				
Initiative 5	Provide indoor clothes lines to all serviced apartments				

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## Appendix A | BASIX Certificates

# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Multi Dwelling

Certificate number: 563021M




This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 29/06/2009 published by Planning & Infrastructure. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

Director-General

Date of issue: Thursday, 07 August 2014

To be valid, this certificate must be lodged within 3 months of the date of issue.



Project summary		
Project name	V By Crown Certificate 1	
Street address	45 Macquarie Street Parramatta 2150	
Local Government Area	Parramatta City Council	
Plan type and plan number	strata 61073	
Lot no.	1	
Section no.	-	
No. of residential flat buildings	1	
No. of units in residential flat buildings	157	
No. of multi-dwelling houses	0	
No. of single dwelling houses	0	
Project score		
Water	 44	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 20	Target 20

### Certificate Prepared by

Name / Company Name: WSP

ABN (if applicable): 47 005 113 468

# Description of project

## Project address

Project name	V By Crown Certificate 1
Street address	45 Macquarie Street Parramatta 2150
Local Government Area	Parramatta City Council
Plan type and plan number	strata 61073
Lot no.	1
Section no.	-

## Project type

No. of residential flat buildings	1
No. of units in residential flat buildings	157
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m²)	1303
Roof area (m²)	864.56
Non-residential floor area (m²)	773.98
Residential car spaces	130
Non-residential car spaces	23

## Common area landscape

Common area lawn (m²)	0
Common area garden (m²)	63.86
Area of indigenous or low water use species (m²)	31.93

## Assessor details

Assessor number	100002
Certificate number	1006695397
Climate zone	56

## Project score

Water	✓ 44	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 20	Target 20



## Description of project

The tables below describe the dwellings and common areas within the project

### Residential flat buildings - Building1, 157 dwellings, 29 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.01	2	90.99	0.0	0	0
1.05	2	87.19	0.0	0	0
2.01	2	90.99	0.0	0	0
2.05	2	87.19	0.0	0	0
2.09	1	55.03	0.0	0	0
3.03	2	77.3	0.0	0	0
3.07	1	54.38	0.0	0	0
3.11	2	90.84	0.0	0	0
3.15	1	61.8	0.0	0	0
4.02	2	90.6	0.0	0	0
4.06	2	93.3	0.0	0	0
4.10	2	85.4	0.0	0	0
4.14	1	61.8	0.0	0	0
5.01	1	59.34	0.0	0	0
5.05	1	54.03	0.0	0	0
5.09	2	85.4	0.0	0	0
5.13	1	61.8	0.0	0	0
5.17	1	47.21	5.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.02	1	41.23	0.0	0	0
1.06	1	41.23	0.0	0	0
2.02	1	41.23	0.0	0	0
2.06	1	41.23	0.0	0	0
2.10	1	47.21	0.0	0	0
3.04	1	54.95	0.0	0	0
3.08	1	57.11	0.0	0	0
3.12	1	61.8	0.0	0	0
3.16	1	55.03	0.0	0	0
4.03	2	77.3	0.0	0	0
4.07	1	54.38	0.0	0	0
4.11	2	85.4	0.0	0	0
4.15	1	61.8	0.0	0	0
5.02	2	90.6	0.0	0	0
5.06	2	93.3	0.0	0	0
5.10	2	85.4	0.0	0	0
5.14	1	61.8	0.0	0	0
6.01	1	59.34	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.03	1	41.23	0.0	0	0
1.07	1	41.23	0.0	0	0
2.03	1	41.23	0.0	0	0
2.07	1	41.23	0.0	0	0
3.01	1	59.34	0.0	0	0
3.05	1	54.03	0.0	0	0
3.09	2	90.8	0.0	0	0
3.13	1	61.8	0.0	0	0
3.17	1	47.21	0.0	0	0
4.04	1	54.95	0.0	0	0
4.08	1	57.11	0.0	0	0
4.12	1	61.8	0.0	0	0
4.16	1	55.03	0.0	0	0
5.03	2	77.3	0.0	0	0
5.07	1	54.38	0.0	0	0
5.11	2	85.4	0.0	0	0
5.15	1	61.8	0.0	0	0
6.02	2	90.6	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.04	2	87.19	0.0	0	0
1.08	2	86.36	0.0	0	0
2.04	2	87.19	0.0	0	0
2.08	2	86.36	0.0	0	0
3.02	2	90.6	0.0	0	0
3.06	2	93.3	0.0	0	0
3.10	2	90.84	0.0	0	0
3.14	1	61.8	0.0	0	0
4.01	1	59.34	0.0	0	0
4.05	1	54.03	0.0	0	0
4.09	2	85.4	0.0	0	0
4.13	1	61.8	0.0	0	0
4.17	1	47.21	0.0	0	0
5.04	1	54.95	0.0	0	0
5.08	1	57.11	0.0	0	0
5.12	1	61.8	0.0	0	0
5.16	1	55.03	0.0	0	0
6.03	2	77.3	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
6.04	1	54.95	0.0	0	0
6.08	1	57.11	0.0	0	0
6.12	1	61.8	0.0	0	0
6.16	1	55.03	0.0	0	0
7.03	2	77.3	0.0	0	0
7.07	1	54.38	0.0	0	0
7.11	2	8.4	0.0	0	0
7.15	1	61.8	0.0	0	0
S2.02	1	61.63	0.0	0	0
S2.06	1	50.92	0.0	0	0
S3.01	1	43.92	0.0	0	0
S3.05	1	41.64	0.0	0	0
S3.09	2	68.84	0.0	0	0
S4.04	1	52.17	0.0	0	0
S4.08	1	53.42	0.0	0	0
S5.03	1	61.3	0.0	0	0
S5.07	1	53.42	0.0	0	0
S6.02	1	61.63	0.0	0	0
S6.06	1	50.92	0.0	0	0
S7.01	1	43.92	0.0	0	0
S7.05	1	41.64	0.0	0	0
S7.09	2	68.84	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
6.05	1	54.03	0.0	0	0
6.09	2	85.4	0.0	0	0
6.13	1	61.8	0.0	0	0
6.17	1	47.21	0.0	0	0
7.04	1	54.95	0.0	0	0
7.08	1	57.11	0.0	0	0
7.12	1	61.8	0.0	0	0
7.16	1	55.03	0.0	0	0
S2.03	1	61.3	0.0	0	0
S2.07	1	53.42	0.0	0	0
S3.02	1	61.63	0.0	0	0
S3.06	1	50.92	0.0	0	0
S4.01	1	43.92	0.0	0	0
S4.05	1	41.64	0.0	0	0
S4.09	2	68.84	0.0	0	0
S5.04	1	52.17	0.0	0	0
S5.08	1	53.42	0.0	0	0
S6.03	1	61.3	0.0	0	0
S6.07	1	53.42	0.0	0	0
S7.02	1	61.63	0.0	0	0
S7.06	1	50.92	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
6.06	2	93.3	0.0	0	0
6.10	2	85.4	0.0	0	0
6.14	1	61.8	0.0	0	0
7.01	1	59.34	0.0	0	0
7.05	1	54.03	0.0	0	0
7.09	2	85.4	0.0	0	0
7.13	1	61.8	0.0	0	0
7.17	1	47.21	0.0	0	0
S2.04	1	52.17	0.0	0	0
S2.08	1	53.42	0.0	0	0
S3.03	1	61.3	0.0	0	0
S3.07	1	53.42	0.0	0	0
S4.02	1	61.63	0.0	0	0
S4.06	1	50.92	0.0	0	0
S5.01	1	43.92	0.0	0	0
S5.05	1	41.64	0.0	0	0
S5.09	2	68.84	0.0	0	0
S6.04	1	52.17	0.0	0	0
S6.08	1	53.42	0.0	0	0
S7.03	1	61.3	0.0	0	0
S7.07	1	53.42	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
6.07	1	54.38	0.0	0	0
6.11	2	85.4	0.0	0	0
6.15	1	61.8	0.0	0	0
7.02	2	90.6	0.0	0	0
7.06	2	93.3	0.0	0	0
7.10	2	85.4	0.0	0	0
7.14	1	61.8	0.0	0	0
S2.01	1	43.92	0.0	0	0
S2.05	1	41.64	0.0	0	0
S2.09	2	68.84	0.0	0	0
S3.04	1	52.17	0.0	0	0
S3.08	1	53.42	0.0	0	0
S4.03	1	61.3	0.0	0	0
S4.07	1	53.42	0.0	0	0
S5.02	1	61.63	0.0	0	0
S5.06	1	50.92	0.0	0	0
S6.01	1	43.92	0.0	0	0
S6.05	1	41.64	0.0	0	0
S6.09	2	68.84	0.0	0	0
S7.04	1	52.17	0.0	0	0
S7.08	1	53.42	0.0	0	0

## Description of project

The tables below describe the dwellings and common areas within the project

### Common areas of unit building - Building1

Common area	Floor area (m²)
Gym & Facilities	37.17
Basement Exhaust Fan Rooms	32.36
Lift car (No. 3)	-
Lift car (No. 6)	-
Garbage Rooms	44.97
Substation	17.78
Luggage Rooms	2.21
Office Areas	12.61
Mail Room	6.55
Residential Lobbies/Corridors	1512.87

Common area	Floor area (m²)
Basement Car Park Areas	4914.1
Lift car (No. 1)	-
Lift car (No. 4)	-
Lift Motor Room	23.26
Garbage/Dirty Linen Rooms	22.41
A/C Rooms	130.60
Plant Rooms	38.21
S.A Lobby	26.08
Store Rooms	86.40

Common area	Floor area (m²)
Basement Supply Fan Rooms	27.97
Lift car (No. 2)	-
Lift car (No. 5)	-
Switch Room	18.28
Residential Amenities	95.02
Comms Room	20.41
Cleaner Room	2.71
Toilets	11.52
Ground Floor Lobby	102.93

# Schedule of BASIX commitments

## 1. Commitments for Residential flat buildings - Building1

### (a) Dwellings

- (i) Water
- (ii) Energy
- (iii) Thermal Comfort

### (b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

## 2. Commitments for multi-dwelling houses

## 3. Commitments for single dwelling houses

## 4. Commitments for common areas and central systems/facilities for the development (non-building specific)

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

### 1. Commitments for Residential flat buildings - Building1

#### (a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✓	✓	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✓	✓
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✓	✓
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✓	✓
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✓	✓
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✓	✓	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✓	
(g) The pool or spa must be located as specified in the table.	✓	✓	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✓	✓	✓



	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 7.5 but <= 9 L/min)	4 star	5 star	5 star	no	4 star	4 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
All dwellings	central water tank (no. 1)	See central systems	See central systems	yes	no	no	no	no
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓

<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	<b>Hot water</b>	<b>Bathroom ventilation system</b>		<b>Kitchen ventilation system</b>		<b>Laundry ventilation system</b>	
<b>Dwelling no.</b>	<b>Hot water system</b>	<b>Each bathroom</b>	<b>Operation control</b>	<b>Each kitchen</b>	<b>Operation control</b>	<b>Each laundry</b>	<b>Operation control</b>
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	interlocked to light	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1.01, 1.04, 1.05, 1.08, 2.01, 2.04, 2.05, 2.08, 3.02, 3.03, 3.06, 3.09, 3.10, 3.11, 4.02, 4.03, 4.06, 4.09, 4.10, 4.11, 5.02, 5.03, 5.06, 5.09, 5.10, 5.11, 6.02, 6.03, 6.06, 6.09, 6.10, 6.11, 7.02, 7.03, 7.06, 7.09, 7.10, 7.11, S2.09,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
S3.09, S4.09, S5.09, S6.09, S7.09												

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1.02, 1.03, 1.06, 1.07, 2.02, 2.03, 2.06, 2.07, 2.09, 2.10, 3.01, 3.04, 3.05, 3.07, 3.08, 3.12, 3.13, 3.14, 3.15, 3.16, 3.17, 4.01, 4.04, 4.05, 4.07, 4.08, 4.12, 4.13, 4.14, 4.15, 4.16, 4.17, 5.01, 5.04, 5.05, 5.07, 5.08, 5.12, 5.13,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
5.14, 5.15, 5.16, 5.17, 6.01, 6.04, 6.05, 6.07, 6.08, 6.12, 6.13, 6.14, 6.15, 6.16, 6.17, 7.01, 7.04, 7.05, 7.07, 7.08, 7.12, 7.13, 7.14, 7.15, 7.16, 7.17, S2.01, S2.02, S2.03, S2.04, S2.05, S2.06, S2.07, S2.08, S3.01, S3.02, S3.03, S3.04, S3.05,												

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
S3.06, S3.07, S3.08, S4.01, S4.02, S4.03, S4.04, S4.05, S4.06, S4.07, S4.08, S5.01, S5.02, S5.03, S5.04, S5.05, S5.06, S5.07, S5.08, S6.01, S6.02, S6.03, S6.04, S6.05, S6.06, S6.07, S6.08, S7.01, S7.02, S7.03, S7.04, S7.05, S7.06, S7.07, S7.08												



	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
S2.01, S2.02, S2.03, S2.04, S2.05, S2.06, S2.07, S2.08, S2.09, S3.01, S3.02, S3.03, S3.04, S3.05, S3.06, S3.07, S3.08, S3.09, S4.01, S4.02, S4.03, S4.04, S4.05, S4.06, S4.07, S4.08, S4.09, S5.01, S5.02, S5.03, S5.04, S5.05, S5.06, S5.07, S5.08, S5.09, S6.01, S6.02,	-	-	-	-	electric cooktop & electric oven	3 star (new rating)	no	3.5 star	3 star	2 star	yes	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
S6.03, S6.04, S6.05, S6.06, S6.07, S6.08, S6.09, S7.01, S7.02, S7.03, S7.04, S7.05, S7.06, S7.07, S7.08, S7.09												

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
1.01, 1.02, 1.03, 1.04, 1.05, 1.06, 1.07, 1.08, 2.01, 2.02, 2.03, 2.04, 2.05, 2.06, 2.07, 2.08, 2.09, 2.10, 3.01, 3.02, 3.03, 3.04, 3.05, 3.06, 3.07, 3.08, 3.09, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, 3.17, 4.01, 4.02, 4.03,	-	-	-	-	gas cooktop & electric oven	-	yes	3.5 star	3 star	2 star	no	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
4.04, 4.05, 4.06, 4.07, 4.08, 4.09, 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, 4.16, 4.17, 5.01, 5.02, 5.03, 5.04, 5.05, 5.06, 5.07, 5.08, 5.09, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15, 5.16, 5.17, 6.01, 6.02, 6.03, 6.04, 6.05, 6.06, 6.07,												

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
6.08, 6.09, 6.10, 6.11, 6.12, 6.13, 6.14, 6.15, 6.16, 6.17, 7.01, 7.02, 7.03, 7.04, 7.05, 7.06, 7.07, 7.08, 7.09, 7.10, 7.11, 7.12, 7.13, 7.14, 7.15, 7.16, 7.17												

(iii) Thermal Comfort								Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.										

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.			
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.			
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
(g) Where there is an in-slab heating or cooling system, the applicant must:  (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✓	✓	✓
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✓	✓	✓

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
1.01	38.5	17.3
1.08	48.6	15.9
2.01	47.9	15.7
2.08	60	14.6
3.04	62.0	6.3
3.07	37.5	9.8
3.08	43.9	9.4
3.09	20.7	12.1

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
3.10	20.7	12.7
3.11	29.8	12.9
7.05	41.8	8.0
S7.04	58.2	9.2
1.02, 2.02	42.9	12.4
1.04, 2.04	34.9	9.3
1.05, 2.05	34.5	8.9
1.06, 2.06	43	12.3
4.10, 6.10	42.7	7
5.10, 7.10	42.7	7.0
1.03, 1.07, 2.03, 2.07	38.2	15
3.05, 4.05, 5.05, 6.05	41.8	8
4.04, 5.04, 6.04, 7.04	62	6.3
4.07, 5.07, 6.07, 7.07	54.3	11.6
4.08, 5.08, 6.08, 7.08	42.9	8.8
4.09, 5.09, 6.09, 7.09	47	6.6
4.11, 5.11, 6.11, 7.11	54.1	6.4
3.01, 4.01, 5.01, 6.01, 7.01	64.2	6.5
3.02, 4.02, 5.02, 6.02, 7.02	60.7	6.2
3.03, 4.03, 5.03, 6.03, 7.03	51.7	7.5
3.06, 4.06, 5.06, 6.06, 7.06	41	5.2
3.12, 4.12, 5.12, 6.12, 7.12	36.7	10.5
3.13, 4.13, 5.13, 6.13, 7.13	39.2	9.8
3.14, 4.14, 5.14, 6.14, 7.14	34.7	9.2
3.15, 4.15, 5.15, 6.15, 7.15	51	11.2
S2.04, S3.04, S4.04, S5.04, S6.04	58.2	9.7
2.09, 3.16, 4.16, 5.16, 6.16, 7.16	64.4	11.8

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
2.10, 3.17, 4.17, 5.17, 6.17, 7.17	40	31.4
S2.01, S3.01, S4.01, S5.01, S6.01, S7.01	29.9	15.2
S2.02, S3.02, S4.02, S5.02, S6.02, S7.02	40.6	8.7
S2.03, S3.03, S4.03, S5.03, S6.03, S7.03	48.5	8.5
S2.05, S3.05, S4.05, S5.05, S6.05, S7.05	30.7	27.3
S2.06, S3.06, S4.06, S5.06, S6.06, S7.06	46.8	12.3
S2.07, S3.07, S4.07, S5.07, S6.07, S7.07	16.7	13
S2.08, S3.08, S4.08, S5.08, S6.08, S7.08	18	13
All other dwellings	63.5	10.3



**(b) Common areas and central systems/facilities**

<b>(i) Water</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

<b>Common area</b>	<b>Showerheads rating</b>	<b>Toilets rating</b>	<b>Taps rating</b>	<b>Clothes washers rating</b>
All common areas	3 star (> 7.5 but ≤ 9 L/min)	4 star	5 star	no common laundry facility

<b>Central systems</b>	<b>Size</b>	<b>Configuration</b>	<b>Connection (to allow for...)</b>
Central water tank - rainwater or stormwater (No. 1)	13305	To collect run-off from at least: - 319.32 square metres of roof area of buildings in the development - 0 square metres of impervious area in the development - 0 square metres of garden/lawn area in the development - 0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 63.86 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Pool (No. 1)	Volume: 34.59 kLs	Location: Building1 Pool shaded: no	-

Central systems	Size	Configuration	Connection (to allow for...)
Spa (No. 1)	Volume: 2.13 kLs	Location: Building1 Spa shaded: no Spa cover: no	-
Fire sprinkler system (No. 1)	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Gym & Facilities	air conditioning system	time clock or BMS controlled	fluorescent	zoned switching	Yes
Basement Car Park Areas	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Basement Supply Fan Rooms	ventilation supply only	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Basement Exhaust Fan Rooms	ventilation exhaust only	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Lift car (No. 1)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 2)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 3)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 4)	-	-	light-emitting diode	connected to lift call button	Yes

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 5)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 6)	-	-	light-emitting diode	connected to lift call button	Yes
Lift Motor Room	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Switch Room	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Garbage Rooms	ventilation exhaust only	-	fluorescent	motion sensors	Yes
Garbage/Dirty Linen Rooms	ventilation (supply + exhaust)	-	fluorescent	manual on / manual off	No
Residential Amenities	air conditioning system	time clock or BMS controlled	compact fluorescent	motion sensors	Yes
Substation	no mechanical ventilation	-	fluorescent	manual on / manual off	No
A/C Rooms	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Comms Room	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Luggage Rooms	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	No
Plant Rooms	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Cleaner Room	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	No
Office Areas	air conditioning system	time clock or BMS controlled	fluorescent	motion sensors	Yes
S.A Lobby	air conditioning system	time clock or BMS controlled	fluorescent	time clocks	Yes
Toilets	ventilation (supply + exhaust)	time clock or BMS controlled	compact fluorescent	time clocks	Yes
Mail Room	ventilation (supply + exhaust)	none ie. continuous	fluorescent	time clocks	Yes
Store Rooms	ventilation (supply + exhaust)	none ie. continuous	fluorescent	zoned switching	Yes
Ground Floor Lobby	air conditioning system	time clock or BMS controlled	fluorescent	time clocks	Yes
Residential Lobbies/Corridors	ventilation (supply + exhaust)	time clock or BMS controlled	fluorescent	motion sensors	Yes

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 8
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 8
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 8
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 8
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 6
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 6
Pool (No. 1)	Heating source: gas	Pump controlled by timer: yes
Spa (No. 1)	Heating system: electric resistance	Pump controlled by timer: yes

#### 4. Commitments for common areas and central systems/facilities for the development (non-building specific)

##### (b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but ≤ 9 L/min)	4 star	5 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

## Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

## Legend

1. Commitments identified with a "✓" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✓" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✓" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Multi Dwelling

Certificate number: 556635M




This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 29/06/2009 published by Planning & Infrastructure. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

Director-General

Date of issue: Thursday, 07 August 2014

To be valid, this certificate must be lodged within 3 months of the date of issue.



Project summary		
Project name	V By Crown Certificate 2	
Street address	45 Macquarie Street Parramatta 2150	
Local Government Area	Parramatta City Council	
Plan type and plan number	strata 61073	
Lot no.	1	
Section no.	-	
No. of residential flat buildings	1	
No. of units in residential flat buildings	158	
No. of multi-dwelling houses	0	
No. of single dwelling houses	0	
Project score		
Water	 44	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 20	Target 20

Certificate Prepared by
Name / Company Name: WSP
ABN (if applicable): 47 005 113 468

# Description of project

## Project address

Project name	V By Crown Certificate 2
Street address	45 Macquarie Street Parramatta 2150
Local Government Area	Parramatta City Council
Plan type and plan number	strata 61073
Lot no.	1
Section no.	-

## Project type

No. of residential flat buildings	1
No. of units in residential flat buildings	158
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m²)	1311.67
Roof area (m²)	870.07
Non-residential floor area (m²)	778.91
Residential car spaces	131
Non-residential car spaces	23

## Common area landscape

Common area lawn (m²)	0
Common area garden (m²)	64.27
Area of indigenous or low water use species (m²)	32.14

## Assessor details

Assessor number	100002
Certificate number	1006695397
Climate zone	56

## Project score

Water	✓ 44	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 20	Target 20



## Description of project

The tables below describe the dwellings and common areas within the project

### Residential flat buildings - Building1, 158 dwellings, 29 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
8.01	1	59.34	0.0	0	0
8.05	1	54.03	0.0	0	0
8.09	2	85.4	0.0	0	0
8.13	1	61.8	0.0	0	0
8.17	1	47.21	0.0	0	0
9.04	1	54.95	0.0	0	0
9.08	1	57.11	0.0	0	0
9.12	1	61.8	0.0	0	0
9.16	1	55.03	0.0	0	0
10.03	2	77.3	0.0	0	0
10.07	1	54.38	0.0	0	0
10.11	2	85.4	0.0	0	0
10.15	1	61.8	0.0	0	0
11.02	2	90.6	0.0	0	0
11.06	2	93.3	0.0	0	0
11.10	2	85.4	0.0	0	0
11.14	1	61.8	0.0	0	0
12.01	1	59.34	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
8.02	2	90.6	0.0	0	0
8.06	2	93.3	0.0	0	0
8.10	2	85.4	0.0	0	0
8.14	1	61.8	0.0	0	0
9.01	1	59.34	0.0	0	0
9.05	1	54.03	0.0	0	0
9.09	2	85.4	0.0	0	0
9.13	1	61.8	0.0	0	0
9.17	1	47.21	0.0	0	0
10.04	1	54.95	0.0	0	0
10.08	1	57.11	0.0	0	0
10.12	1	61.8	0.0	0	0
10.16	1	55.03	0.0	0	0
11.03	2	77.3	0.0	0	0
11.07	1	54.38	0.0	0	0
11.11	2	85.4	0.0	0	0
11.15	1	61.8	0.0	0	0
12.02	2	90.59	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
8.03	2	77.3	0.0	0	0
8.07	1	54.39	0.0	0	0
8.11	2	85.4	0.0	0	0
8.15	1	61.8	0.0	0	0
9.02	2	90.6	0.0	0	0
9.06	2	93.3	0.0	0	0
9.10	2	85.4	0.0	0	0
9.14	1	61.8	0.0	0	0
10.01	1	59.34	0.0	0	0
10.05	1	54.03	0.0	0	0
10.09	2	85.4	0.0	0	0
10.13	1	61.8	0.0	0	0
10.17	1	47.21	0.0	0	0
11.04	1	54.95	0.0	0	0
11.08	1	57.11	0.0	0	0
11.12	1	61.8	0.0	0	0
11.16	1	55.03	0.0	0	0
12.03	2	77.28	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
8.04	1	54.95	0.0	0	0
8.08	1	57.11	0.0	0	0
8.12	1	61.8	0.0	0	0
8.16	1	55.03	0.0	0	0
9.03	2	77.3	0.0	0	0
9.07	1	54.38	0.0	0	0
9.11	2	85.4	0.0	0	0
9.15	1	61.8	0.0	0	0
10.02	2	90.6	0.0	0	0
10.06	2	93.3	0.0	0	0
10.10	2	85.4	0.0	0	0
10.14	1	61.8	0.0	0	0
11.01	1	59.34	0.0	0	0
11.05	1	54.03	0.0	0	0
11.09	2	85.4	0.0	0	0
11.13	1	61.8	0.0	0	0
11.17	1	47.21	0.0	0	0
12.04	1	54.95	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
12.05	1	54.03	0.0	0	0
12.09	2	85.36	0.0	0	0
12.13	1	61.78	0.0	0	0
12.17	1	45.9	0.0	0	0
13.04	1	54.95	0.0	0	0
13.08	1	57.11	0.0	0	0
13.12	1	61.78	0.0	0	0
13.16	1	45.9	0.0	0	0
S0803	1	61.3	0.0	0	0
S0807	1	53.42	0.0	0	0
S0902	1	61.63	0.0	0	0
S0906	1	50.92	0.0	0	0
S1001	1	43.92	0.0	0	0
S1005	1	41.64	0.0	0	0
S1009	2	68.84	0.0	0	0
S1104	1	52.17	0.0	0	0
S1108	1	53.42	0.0	0	0
S1203	1	61.3	0.0	0	0
S1207	1	53.42	0.0	0	0
S1301	1	43.92	0.0	0	0
S1305	1	41.64	0.0	0	0
S1309	1	50.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
12.06	2	93.33	0.0	0	0
12.10	2	85.36	0.0	0	0
12.14	1	61.78	0.0	0	0
13.01	1	59.34	0.0	0	0
13.05	1	54.03	0.0	0	0
13.09	2	85.36	0.0	0	0
13.13	1	61.78	0.0	0	0
13.17	1	45.9	0.0	0	0
S0804	1	52.17	0.0	0	0
S0808	1	53.42	0.0	0	0
S0903	1	61.3	0.0	0	0
S0907	1	53.42	0.0	0	0
S1002	1	61.63	0.0	0	0
S1006	1	50.92	0.0	0	0
S1101	1	43.92	0.0	0	0
S1105	1	41.64	0.0	0	0
S1109	2	68.84	0.0	0	0
S1204	1	52.17	0.0	0	0
S1208	1	53.42	0.0	0	0
S1302	1	61.63	0.0	0	0
S1306	1	50.92	0.0	0	0
S1310	1	42.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
12.07	1	54.38	0.0	0	0
12.11	2	85.36	0.0	0	0
12.15	1	61.78	0.0	0	0
13.02	2	90.59	0.0	0	0
13.06	2	93.33	0.0	0	0
13.10	2	85.36	0.0	0	0
13.14	1	61.78	0.0	0	0
S0801	1	43.92	0.0	0	0
S0805	1	41.64	0.0	0	0
S0809	2	68.84	0.0	0	0
S0904	1	52.17	0.0	0	0
S0908	1	53.42	0.0	0	0
S1003	1	61.3	0.0	0	0
S1007	1	53.42	0.0	0	0
S1102	1	61.63	0.0	0	0
S1106	1	50.92	0.0	0	0
S1201	1	43.92	0.0	0	0
S1205	1	41.64	0.0	0	0
S1209	1	50.0	0.0	0	0
S1303	1	61.3	0.0	0	0
S1307	1	53.42	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
12.08	1	57.11	0.0	0	0
12.12	1	61.78	0.0	0	0
12.16	1	45.9	0.0	0	0
13.03	2	77.28	0.0	0	0
13.07	1	54.38	0.0	0	0
13.11	2	85.36	0.0	0	0
13.15	1	61.78	0.0	0	0
S0802	1	61.63	0.0	0	0
S0806	1	50.92	0.0	0	0
S0901	1	43.92	0.0	0	0
S0905	1	41.64	0.0	0	0
S0909	2	68.84	0.0	0	0
S1004	1	52.17	0.0	0	0
S1008	1	53.42	0.0	0	0
S1103	1	61.3	0.0	0	0
S1107	1	53.42	0.0	0	0
S1202	1	61.63	0.0	0	0
S1206	1	50.92	0.0	0	0
S1210	1	42.0	0.0	0	0
S1304	1	52.17	0.0	0	0
S1308	1	53.42	0.0	0	0

## Description of project

The tables below describe the dwellings and common areas within the project

### Common areas of unit building - Building1

Common area	Floor area (m²)
Gym & Facilities	37.41
Basement Exhaust Fan Rooms	32.56
Lift car (No. 3)	-
Lift car (No. 6)	-
Garbage Rooms	45.26
Substation	17.89
Luggage Rooms	2.22
Office Areas	12.61
Mail Room	6.59
Residential Lobbies/Corridors	1522.50

Common area	Floor area (m²)
Basement Car Park Areas	4709.55
Lift car (No. 1)	-
Lift car (No. 4)	-
Lift Motor Room	23.41
Garbage/Dirty Linen Rooms	22.5
A/C Rooms	131.43
Plant Rooms	38.46
S.A Lobby	26.24
Store Rooms	86.95

Common area	Floor area (m²)
Basement Supply Fan Rooms	28.15
Lift car (No. 2)	-
Lift car (No. 5)	-
Switch Room	18.40
Residential Amenities	95.63
Comms Room	20.54
Cleaner Room	2.73
Toilets	11.60
Ground Floor Lobby	103.58

# Schedule of BASIX commitments

## 1. Commitments for Residential flat buildings - Building1

### (a) Dwellings

- (i) Water
- (ii) Energy
- (iii) Thermal Comfort

### (b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

## 2. Commitments for multi-dwelling houses

## 3. Commitments for single dwelling houses

## 4. Commitments for common areas and central systems/facilities for the development (non-building specific)

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

### 1. Commitments for Residential flat buildings - Building1

#### (a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✓	✓	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✓	✓
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✓	✓
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✓	✓
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✓	✓
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✓	✓	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✓	
(g) The pool or spa must be located as specified in the table.	✓	✓	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✓	✓	✓

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
13.16, S0801, S0802, S0803, S0804, S0805, S0806, S0807, S0808, S0809, S0901, S0902, S0903, S0904, S0905, S0906, S0907, S0908, S0909, S1007, S1008, S1009, S1101, S1102, S1103, S1104, S1105, S1106, S1107, S1108, S1109, S1201, S1202, S1203, S1204, S1205, S1206, S1207, S1208, S1209,	3 star (> 7.5 but <= 9 L/min)	4 star	5 star	5 star	no	4 star	4 star	-	-	-	-	-	-	-

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
S1210, S1301, S1302, S1303, S1304, S1305, S1306, S1307, S1308, S1309, S1310														

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
8.01, 8.02, 8.03, 8.04, 8.05, 8.06, 8.07, 8.08, 8.09, 8.10, 8.11, 8.12, 8.13, 8.14, 8.15, 8.16, 8.17, 9.01, 9.02, 9.03, 9.04, 9.05, 9.06, 9.07, 9.08, 9.09, 9.10, 9.11, 9.12, 9.13, 9.14, 9.15, 9.16, 9.17, 10.01, 10.02, 10.03, 10.04, 10.05, 10.06,	3 star (> 7.5 but <= 9 L/min)	4 star	5 star	5 star	no	4 star	4 star	-	-	-	-	-	-	-



	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
10.07, 10.08, 10.09, 10.10, 10.11, 10.12, 10.13, 10.14, 10.15, 10.16, 10.17, 11.01, 11.02, 11.03, 11.04, 11.05, 11.06, 11.07, 11.08, 11.09, 11.10, 11.11, 11.12, 11.13, 11.14, 11.15, 11.16, 11.17, 12.01, 12.02, 12.03, 12.04, 12.05, 12.06, 12.07, 12.08, 12.09, 12.10, 12.11, 12.12,														

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
12.13, 12.14, 12.15, 12.16, 12.17, 13.01, 13.02, 13.03, 13.04, 13.05, 13.06, 13.07, 13.08, 13.09, 13.10, 13.11, 13.12, 13.13, 13.14, 13.15, 13.17, S1001, S1002, S1003, S1004, S1005, S1006														

	Alternative water source								
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up	
All dwellings	central water tank (no. 1)	See central systems	See central systems	yes	no	no	no	no	
None	-	-	-	-	-	-	-	-	

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	interlocked to light	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
8.02, 8.03, 8.06, 8.09, 8.10, 8.11, 9.02, 9.03, 9.06, 9.09, 9.10, 9.11, 10.02, 10.03, 10.06, 10.09, 10.10, 10.11, 11.02, 11.03, 11.06, 11.09, 11.10, 11.11, 12.02, 12.03, 12.06, 12.09, 12.10, 12.11, 13.02, 13.03, 13.06, 13.09, 13.10, 13.11, S0809, S0909, S1009,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
S1109												

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
8.01, 8.04, 8.05, 8.07, 8.08, 8.12, 8.13, 8.14, 8.15, 8.16, 8.17, 9.01, 9.04, 9.05, 9.07, 9.08, 9.12, 9.13, 9.14, 9.15, 9.16, 9.17, 10.01, 10.04, 10.05, 10.07, 10.08, 10.12, 10.13, 10.14, 10.15, 10.16, 10.17, 11.01, 11.04, 11.05, 11.07, 11.08, 11.12,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
11.13, 11.14, 11.15, 11.16, 11.17, 12.01, 12.04, 12.05, 12.07, 12.08, 12.12, 12.13, 12.14, 12.15, 12.16, 12.17, 13.01, 13.04, 13.05, 13.07, 13.08, 13.12, 13.13, 13.14, 13.15, 13.16, 13.17, S0801, S0802, S0803, S0804, S0805, S0806, S0807, S0808, S0901, S0902, S0903, S0904,												



	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
S0905, S0906, S0907, S0908, S1001, S1002, S1003, S1004, S1005, S1006, S1007, S1008, S1101, S1102, S1103, S1104, S1105, S1106, S1107, S1108, S1201, S1202, S1203, S1204, S1205, S1206, S1207, S1208, S1209, S1210, S1301, S1302, S1303, S1304, S1305, S1306, S1307, S1308, S1309,												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
S1310												

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
S0801, S0802, S0803, S0804, S0805, S0806, S0807, S0808, S0809, S0901, S0902, S0903, S0904, S0905, S0906, S0907, S0908, S0909, S1001, S1002, S1003, S1004, S1005, S1006, S1007, S1008, S1009, S1101, S1102, S1103, S1104, S1105, S1106, S1107, S1108, S1109, S1201, S1202,	-	-	-	-	electric cooktop & electric oven	3 star (new rating)	no	3.5 star	3 star	2 star	yes	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
S1203, S1204, S1205, S1206, S1207, S1208, S1209, S1210, S1301, S1302, S1303, S1304, S1305, S1306, S1307, S1308, S1309, S1310												

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
8.01, 8.02, 8.03, 8.04, 8.05, 8.06, 8.07, 8.08, 8.09, 8.10, 8.11, 8.12, 8.13, 8.14, 8.15, 8.16, 8.17, 9.01, 9.02, 9.03, 9.04, 9.05, 9.06, 9.07, 9.08, 9.09, 9.10, 9.11, 9.12, 9.13, 9.14, 9.15, 9.16, 9.17, 10.01, 10.02, 10.03, 10.04,	-	-	-	-	gas cooktop & electric oven	-	yes	3.5 star	3 star	2 star	no	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
10.05, 10.06, 10.07, 10.08, 10.09, 10.10, 10.11, 10.12, 10.13, 10.14, 10.15, 10.16, 10.17, 11.01, 11.02, 11.03, 11.04, 11.05, 11.06, 11.07, 11.08, 11.09, 11.10, 11.11, 11.12, 11.13, 11.14, 11.15, 11.16, 11.17, 12.01, 12.02, 12.03, 12.04, 12.05, 12.06, 12.07, 12.08,												

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
12.09, 12.10, 12.11, 12.12, 12.13, 12.14, 12.15, 12.16, 12.17, 13.01, 13.02, 13.03, 13.04, 13.05, 13.06, 13.07, 13.08, 13.09, 13.10, 13.11, 13.12, 13.13, 13.14, 13.15, 13.16, 13.17												

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.			
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.			
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
(g) Where there is an in-slab heating or cooling system, the applicant must:  (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✓	✓	✓
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✓	✓	✓

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
12.01, 13.01	55.3	7.8
12.02, 13.02	49.0	6.6
12.03, 13.03	58.1	8.7
12.04, 13.04	56.7	7.1
12.05, 13.05	58.4	9.5
12.06, 13.06	64.9	5.6
12.09, 13.09	51.0	6.5
12.10, 13.10	46.7	6.7
12.11, 13.11	58.4	6.6



	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
12.12, 13.12	42.3	10.2
12.13, 13.13	43.9	9.2
12.14, 13.14	39.4	8.8
12.15, 13.15	56.3	10.9
12.16, 13.16	26.9	31.2
12.17, 13.17	36.3	29.0
S1201, S1301	38.2	9.7
S1202, S1302	49.5	6.8
S1203, S1303	58.2	7.5
S1204, S1304	37.0	7.7
S1205, S1305	37.9	22.5
S1206, S1306	55.4	10.0
S1207, S1307	24.5	10.0
S1208, S1308	25.6	10.5
S1209, S1309	44.4	10.5
S1210, S1310	32.5	29.4
8.01, 9.01, 10.01, 11.01	64.2	6.5
8.02, 9.02, 10.02, 11.02	60.7	6.2
8.03, 9.03, 10.03, 11.03	51.7	7.5
8.04, 9.04, 10.04, 11.04	62.0	6.3
8.05, 9.05, 10.05, 11.05	41.8	8.0
8.06, 9.06, 10.06, 11.06	41.0	5.2
8.09, 9.09, 10.09, 11.09	47.0	6.6
8.10, 9.10, 10.10, 11.10	42.7	7.0
8.11, 9.11, 10.11, 11.11	54.1	6.4
8.12, 9.12, 10.12, 11.12	36.7	10.5
8.13, 9.13, 10.13, 11.13	39.2	9.8

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
8.14, 9.14, 10.14, 11.14	34.7	9.2
8.15, 9.15, 10.15, 11.15	51.0	11.2
8.16, 9.16, 10.16, 11.16	64.4	11.8
8.17, 9.17, 10.17, 11.17	40.0	31.4
S0801, S0901, S1001, S1101	29.9	15.2
S0802, S0902, S1002, S1102	40.6	8.7
S0803, S0903, S1003, S1103	48.5	8.5
S0804, S0904, S1004, S1104	58.2	9.7
S0805, S0905, S1005, S1105	30.7	27.3
S0806, S0906, S1006, S1106	46.8	12.3
S0807, S0907, S1007, S1107	16.7	13.0
S0808, S0908, S1008, S1108	18.0	13.0
S0809, S0909, S1009, S1109	63.5	10.3
8.07, 9.07, 10.07, 11.07, 12.07, 13.07	54.3	11.6
All other dwellings	42.9	8.8

**(b) Common areas and central systems/facilities**

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but <= 9 L/min)	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	13390	To collect run-off from at least: - 321.36 square metres of roof area of buildings in the development - 0 square metres of impervious area in the development - 0 square metres of garden/lawn area in the development - 0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 64.27 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Pool (No. 1)	Volume: 34.81 kLs	Location: Building1 Pool shaded: no	-

Central systems	Size	Configuration	Connection (to allow for...)
Spa (No. 1)	Volume: 2.14 kLs	Location: Building1 Spa shaded: no Spa cover: no	-
Fire sprinkler system (No. 1)	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Gym & Facilities	air conditioning system	time clock or BMS controlled	fluorescent	zoned switching	Yes
Basement Car Park Areas	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Basement Supply Fan Rooms	ventilation supply only	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Basement Exhaust Fan Rooms	ventilation exhaust only	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Lift car (No. 1)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 2)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 3)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 4)	-	-	light-emitting diode	connected to lift call button	Yes

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 5)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 6)	-	-	light-emitting diode	connected to lift call button	Yes
Lift Motor Room	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Switch Room	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Garbage Rooms	ventilation exhaust only	-	fluorescent	motion sensors	No
Garbage/Dirty Linen Rooms	ventilation (supply + exhaust)	-	fluorescent	manual on / manual off	No
Residential Amenities	air conditioning system	time clock or BMS controlled	compact fluorescent	motion sensors	Yes
Substation	no mechanical ventilation	-	fluorescent	manual on / manual off	No
A/C Rooms	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Comms Room	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Luggage Rooms	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	No
Plant Rooms	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Cleaner Room	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	No
Office Areas	air conditioning system	time clock or BMS controlled	fluorescent	motion sensors	Yes
S.A Lobby	air conditioning system	time clock or BMS controlled	fluorescent	time clocks	Yes
Toilets	ventilation (supply + exhaust)	time clock or BMS controlled	compact fluorescent	time clocks	Yes
Mail Room	ventilation (supply + exhaust)	none ie. continuous	fluorescent	time clocks	Yes
Store Rooms	ventilation (supply + exhaust)	none ie. continuous	fluorescent	zoned switching	Yes
Ground Floor Lobby	air conditioning system	time clock or BMS controlled	fluorescent	time clocks	Yes
Residential Lobbies/Corridors	ventilation (supply + exhaust)	time clock or BMS controlled	fluorescent	motion sensors	Yes

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 6
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 6
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 6
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 6
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 6
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 5
Pool (No. 1)	Heating source: gas	Pump controlled by timer: yes
Spa (No. 1)	Heating system: electric resistance	Pump controlled by timer: yes

#### 4. Commitments for common areas and central systems/facilities for the development (non-building specific)

##### (b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but ≤ 9 L/min)	4 star	5 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

## Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

## Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).



# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Multi Dwelling

Certificate number: 556634M




This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 29/06/2009 published by Planning & Infrastructure. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

Director-General

Date of issue: Thursday, 07 August 2014

To be valid, this certificate must be lodged within 3 months of the date of issue.



Project summary		
Project name	V By Crown Certificate 3	
Street address	45 Macquarie Street Parramatta 2150	
Local Government Area	Parramatta City Council	
Plan type and plan number	strata 61073	
Lot no.	1	
Section no.	-	
No. of residential flat buildings	1	
No. of units in residential flat buildings	166	
No. of multi-dwelling houses	0	
No. of single dwelling houses	0	
Project score		
Water	 46	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 20	Target 20

Certificate Prepared by
Name / Company Name: WSP
ABN (if applicable): 47 005 113 468

# Description of project

## Project address

Project name	V By Crown Certificate 3
Street address	45 Macquarie Street Parramatta 2150
Local Government Area	Parramatta City Council
Plan type and plan number	strata 61073
Lot no.	1
Section no.	-

## Project type

No. of residential flat buildings	1
No. of units in residential flat buildings	166
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m <sup>2</sup> )	1378.08
Roof area (m <sup>2</sup> )	914.13
Non-residential floor area (m <sup>2</sup> )	818.35
Residential car spaces	138
Non-residential car spaces	24

## Common area landscape

Common area lawn (m <sup>2</sup> )	0
Common area garden (m <sup>2</sup> )	67.53
Area of indigenous or low water use species (m <sup>2</sup> )	33.76

## Assessor details

Assessor number	100002
Certificate number	1006695397
Climate zone	56

## Project score

Water	✓ 46	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 20	Target 20

## Description of project

The tables below describe the dwellings and common areas within the project

### Residential flat buildings - Building1, 166 dwellings, 29 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
14.01	1	59.34	0.0	0	0
14.05	1	54.03	0.0	0	0
14.09	2	85.36	0.0	0	0
14.13	1	61.78	0.0	0	0
14.17	1	45.9	0.0	0	0
15.04	1	54.95	0.0	0	0
15.08	1	57.11	0.0	0	0
15.12	1	61.78	0.0	0	0
15.16	1	45.9	0.0	0	0
16.03	2	77.28	0.0	0	0
16.07	1	54.38	0.0	0	0
16.11	2	85.36	0.0	0	0
16.15	1	61.78	0.0	0	0
17.02	2	90.59	0.0	0	0
17.06	2	93.33	0.0	0	0
17.10	2	85.36	0.0	0	0
17.14	1	61.78	0.0	0	0
18.01	1	59.34	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
14.02	2	90.59	0.0	0	0
14.06	2	93.33	0.0	0	0
14.10	2	85.36	0.0	0	0
14.14	1	61.78	0.0	0	0
15.01	1	59.34	0.0	0	0
15.05	1	64.03	0.0	0	0
15.09	2	85.36	0.0	0	0
15.13	1	61.78	0.0	0	0
15.17	1	45.9	0.0	0	0
16.04	1	54.95	0.0	0	0
16.08	1	57.11	0.0	0	0
16.12	1	61.78	0.0	0	0
16.16	1	45.9	0.0	0	0
17.03	2	77.28	0.0	0	0
17.07	1	54.38	0.0	0	0
17.11	2	85.36	0.0	0	0
17.15	1	61.78	0.0	0	0
18.02	2	90.59	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
14.03	2	77.28	0.0	0	0
14.07	1	54.38	0.0	0	0
14.11	2	85.36	0.0	0	0
14.15	1	61.78	0.0	0	0
15.02	2	90.59	0.0	0	0
15.06	2	93.33	0.0	0	0
15.10	2	85.36	0.0	0	0
15.14	1	61.78	0.0	0	0
16.01	1	59.34	0.0	0	0
16.05	2	54.03	0.0	0	0
16.09	2	85.36	0.0	0	0
16.13	1	61.78	0.0	0	0
16.17	1	45.9	0.0	0	0
17.04	1	54.95	0.0	0	0
17.08	1	57.11	0.0	0	0
17.12	1	61.78	0.0	0	0
17.16	1	45.9	0.0	0	0
18.03	2	77.28	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
14.04	1	54.95	0.0	0	0
14.08	1	57.11	0.0	0	0
14.12	1	61.78	0.0	0	0
14.16	1	45.9	0.0	0	0
15.03	2	77.28	0.0	0	0
15.07	1	54.38	0.0	0	0
15.11	2	85.36	0.0	0	0
15.15	1	61.78	0.0	0	0
16.02	2	90.59	0.0	0	0
16.06	2	93.33	0.0	0	0
16.10	2	85.36	0.0	0	0
16.14	1	61.78	0.0	0	0
17.01	1	59.34	0.0	0	0
17.05	1	54.03	0.0	0	0
17.09	2	85.36	0.0	0	0
17.13	1	61.78	0.0	0	0
17.17	1	45.9	0.0	0	0
18.04	1	54.95	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
18.05	1	54.03	0.0	0	0
18.09	2	85.36	0.0	0	0
18.13	1	45.9	0.0	0	0
19.04	1	54.95	0.0	0	0
19.08	1	57.11	0.0	0	0
19.12	1	61.78	0.0	0	0
19.16	2	76.5	0.0	0	0
20.02	2	90.59	0.0	0	0
20.06	2	93.3	0.0	0	0
20.10	2	85.36	0.0	0	0
20.14	1	61.78	0.0	0	0
20.18	1	45.9	0.0	0	0
S1404	1	52.17	0.0	0	0
S1408	1	53.42	0.0	0	0
S1502	1	61.63	0.0	0	0
S1506	1	50.92	0.0	0	0
S1510	1	42.0	0.0	0	0
S1604	1	52.17	0.0	0	0
S1608	1	53.42	0.0	0	0
S1702	1	61.63	0.0	0	0
S1706	1	53.42	0.0	0	0
S1801	1	43.92	0.0	0	0
S1805	1	53.42	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
18.06	2	93.3	0.0	0	0
18.10	2	85.36	0.0	0	0
19.01	1	59.34	0.0	0	0
19.05	1	54.03	0.0	0	0
19.09	2	85.36	0.0	0	0
19.13	1	61.78	0.0	0	0
19.17	1	45.9	0.0	0	0
20.03	2	77.28	0.0	0	0
20.07	1	54.38	0.0	0	0
20.11	2	85.36	0.0	0	0
20.15	1	61.78	0.0	0	0
S1401	1	43.92	0.0	0	0
S1405	1	41.64	0.0	0	0
S1409	1	50.0	0.0	0	0
S1503	1	61.3	0.0	0	0
S1507	1	53.42	0.0	0	0
S1601	1	43.92	0.0	0	0
S1605	1	41.64	0.0	0	0
S1609	1	50.0	0.0	0	0
S1703	1	61.3	0.0	0	0
S1707	1	53.42	0.0	0	0
S1802	1	61.63	0.0	0	0
S1806	1	53.42	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
18.07	1	54.38	0.0	0	0
18.11	2	85.36	0.0	0	0
19.02	2	90.59	0.0	0	0
19.06	2	93.3	0.0	0	0
19.10	2	85.36	0.0	0	0
19.14	1	61.78	0.0	0	0
19.18	1	45.9	0.0	0	0
20.04	1	54.95	0.0	0	0
20.08	1	57.11	0.0	0	0
20.12	1	61.78	0.0	0	0
20.16	2	76.5	0.0	0	0
S1402	1	61.63	0.0	0	0
S1406	1	50.92	0.0	0	0
S1410	1	42.0	0.0	0	0
S1504	1	52.17	0.0	0	0
S1508	1	53.42	0.0	0	0
S1602	1	61.63	0.0	0	0
S1606	1	50.92	0.0	0	0
S1610	1	42.0	0.0	0	0
S1704	2	77.6	0.0	0	0
S1708	1	50.0	0.0	0	0
S1803	1	61.3	0.0	0	0
S1807	1	49.97	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
18.08	1	57.11	0.0	0	0
18.12	1	42.0	0.0	0	0
19.03	2	77.28	0.0	0	0
19.07	1	54.38	0.0	0	0
19.11	2	85.36	0.0	0	0
19.15	1	61.78	0.0	0	0
20.01	1	59.34	0.0	0	0
20.05	1	54.03	0.0	0	0
20.09	2	85.36	0.0	0	0
20.13	1	61.78	0.0	0	0
20.17	1	45.9	0.0	0	0
S1403	1	61.3	0.0	0	0
S1407	1	53.42	0.0	0	0
S1501	1	43.92	0.0	0	0
S1505	1	41.64	0.0	0	0
S1509	1	50.0	0.0	0	0
S1603	1	61.3	0.0	0	0
S1607	1	53.42	0.0	0	0
S1701	1	43.92	0.0	0	0
S1705	1	50.92	0.0	0	0
S1709	1	42.0	0.0	0	0
S1804	2	77.62	0.0	0	0
S1808	1	42.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
S1809	3	118.2	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
S1810	3	116.6	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
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Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
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## Description of project

The tables below describe the dwellings and common areas within the project

### Common areas of unit building - Building1

Common area	Floor area (m²)
Gym & Facilities	25.81
Basement Exhaust Fan Rooms	34.21
Lift car (No. 3)	-
Lift car (No. 6)	-
Garbage Rooms	47.55
Substation	18.79
Comms Rooms	21.58
Office Areas	13.34
Store Rooms	91.36
Residential Lobbies/Corridors	1599.59

Common area	Floor area (m²)
Basement Car Park Area	4945.40
Lift car (No. 1)	-
Lift car (No. 4)	-
Lift Motor Room	24.59
Garbage/Dirty Linen Rooms	23.69
Plant Rooms	40.40
Cleaner Room	2.87
Luggage Rooms	2.34
Ground Floor Lobby	108.83

Common area	Floor area (m²)
Basement Supply Fan Rooms	29.57
Lift car (No. 2)	-
Lift car (No. 5)	-
Switch Room	19.33
Residential Amenities	100.47
A/C Rooms	138.09
Mail Room	6.92
Toilets	12.18
S.A Lobby	27.57

# Schedule of BASIX commitments

## 1. Commitments for Residential flat buildings - Building1

### (a) Dwellings

- (i) Water
- (ii) Energy
- (iii) Thermal Comfort

### (b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

## 2. Commitments for multi-dwelling houses

## 3. Commitments for single dwelling houses

## 4. Commitments for common areas and central systems/facilities for the development (non-building specific)

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

### 1. Commitments for Residential flat buildings - Building1

#### (a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✓	✓	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✓	✓
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✓	✓
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✓	✓
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✓	✓
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✓	✓	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✓	
(g) The pool or spa must be located as specified in the table.	✓	✓	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✓	✓	✓



	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
20.02, 20.10, 20.11, 20.12, 20.13, 20.14, 20.15, 20.16, 20.17, 20.18, S1401, S1402, S1403, S1404, S1405, S1406, S1407, S1408, S1409, S1410, S1501, S1502, S1503, S1504, S1505, S1506, S1507, S1508, S1509, S1510, S1601, S1602, S1603, S1604, S1605, S1606, S1607, S1608, S1609, S1610,	3 star (> 7.5 but <= 9 L/min)	4 star	5 star	5 star	no	4 star	4 star	-	-	-	-	-	-	-

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
S1701, S1702, S1703, S1704, S1705, S1706, S1707, S1708, S1709, S1801, S1802, S1803, S1804, S1805, S1806, S1807														

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
14.01, 14.02, 14.03, 14.04, 14.05, 14.06, 14.07, 14.08, 14.09, 14.10, 14.11, 14.12, 14.13, 14.14, 14.15, 14.16, 14.17, 15.01, 15.02, 15.03, 15.04, 15.05, 15.06, 15.07, 15.08, 15.09, 15.10, 15.11, 15.12, 15.13, 15.14, 15.15, 15.16, 15.17, 16.01, 16.02, 16.03, 16.04, 16.05, 16.06,	3 star (> 7.5 but <= 9 L/min)	4 star	5 star	5 star	no	4 star	4 star	-	-	-	-	-	-	-

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
16.07, 16.08, 16.09, 16.10, 16.11, 16.12, 16.13, 16.14, 16.15, 16.16, 16.17, 17.01, 17.02, 17.03, 17.04, 17.05, 17.06, 17.07, 17.08, 17.09, 17.10, 17.11, 17.12, 17.13, 17.14, 17.15, 17.16, 17.17, 18.01, 18.02, 18.03, 18.04, 18.05, 18.06, 18.07, 18.08, 18.09, 18.10, 18.11, 18.12,														

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
18.13, 19.01, 19.02, 19.03, 19.04, 19.05, 19.06, 19.07, 19.08, 19.09, 19.10, 19.11, 19.12, 19.13, 19.14, 19.15, 19.16, 19.17, 19.18, 20.01, 20.03, 20.04, 20.05, 20.06, 20.07, 20.08, 20.09, S1808, S1809, S1810														

Dwelling no.	Alternative water source							
	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
All dwellings	central water tank (no. 1)	See central systems	See central systems	yes	no	no	no	no
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓ ✓	
(h) The applicant must install in the dwelling:			

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✓	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✓	✓
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	interlocked to light	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
S1809, S1810	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
14.02, 14.03, 14.06, 14.09, 14.10, 14.11, 15.02, 15.03, 15.06, 15.09, 15.10, 15.11, 16.02, 16.03, 16.05, 16.06, 16.09, 16.10, 16.11, 17.02, 17.03, 17.06, 17.09, 17.10, 17.11, 18.02, 18.03, 18.06, 18.09, 18.10, 18.11, 19.02, 19.03, 19.06, 19.09, 19.10, 19.11, 19.16, 20.02,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no



	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
20.03, 20.06, 20.09, 20.10, 20.11, 20.16, S1704, S1804												

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
14.01, 14.04, 14.05, 14.07, 14.08, 14.12, 14.13, 14.14, 14.15, 14.16, 14.17, 15.01, 15.04, 15.05, 15.07, 15.08, 15.12, 15.13, 15.14, 15.15, 15.16, 15.17, 16.01, 16.04, 16.07, 16.08, 16.12, 16.13, 16.14, 16.15, 16.16, 16.17, 17.01, 17.04, 17.05, 17.07, 17.08, 17.12, 17.13,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
17.14, 17.15, 17.16, 17.17, 18.01, 18.04, 18.05, 18.07, 18.08, 18.12, 18.13, 19.01, 19.04, 19.05, 19.07, 19.08, 19.12, 19.13, 19.14, 19.15, 19.17, 19.18, 20.01, 20.04, 20.05, 20.07, 20.08, 20.12, 20.13, 20.14, 20.15, 20.17, 20.18, S1401, S1402, S1403, S1404, S1405, S1406,												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
S1407, S1408, S1409, S1410, S1501, S1502, S1503, S1504, S1505, S1506, S1507, S1508, S1509, S1510, S1601, S1602, S1603, S1604, S1605, S1606, S1607, S1608, S1609, S1610, S1701, S1702, S1703, S1705, S1706, S1707, S1708, S1709, S1801, S1802, S1803, S1805, S1806, S1807, S1808												

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
S1401, S1402, S1403, S1404, S1405, S1406, S1407, S1408, S1409, S1410, S1501, S1502, S1503, S1504, S1505, S1506, S1507, S1508, S1509, S1510, S1601, S1602, S1603, S1604, S1605, S1606, S1607, S1608, S1609, S1610, S1701, S1702, S1703, S1704, S1705, S1706, S1707, S1708,	-	-	-	-	electric cooktop & electric oven	3 star (new rating)	no	3.5 star	3 star	2 star	yes	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
S1709, S1801, S1802, S1803, S1804, S1805, S1806, S1807, S1808, S1809, S1810												

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
14.01, 14.02, 14.03, 14.04, 14.05, 14.06, 14.07, 14.08, 14.09, 14.10, 14.11, 14.12, 14.13, 14.14, 14.15, 14.16, 14.17, 15.01, 15.02, 15.03, 15.04, 15.05, 15.06, 15.07, 15.08, 15.09, 15.10, 15.11, 15.12, 15.13, 15.14, 15.15, 15.16, 15.17, 16.01, 16.02, 16.03, 16.04,	-	-	-	-	gas cooktop & electric oven	-	yes	3.5 star	3 star	2 star	no	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
16.05, 16.06, 16.07, 16.08, 16.09, 16.10, 16.11, 16.12, 16.13, 16.14, 16.15, 16.16, 16.17, 17.01, 17.02, 17.03, 17.04, 17.05, 17.06, 17.07, 17.08, 17.09, 17.10, 17.11, 17.12, 17.13, 17.14, 17.15, 17.16, 17.17, 18.01, 18.02, 18.03, 18.04, 18.05, 18.06, 18.07, 18.08,												



	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
18.09, 18.10, 18.11, 18.12, 18.13, 19.01, 19.02, 19.03, 19.04, 19.05, 19.06, 19.07, 19.08, 19.09, 19.10, 19.11, 19.12, 19.13, 19.14, 19.15, 19.16, 19.17, 19.18, 20.01, 20.02, 20.03, 20.04, 20.05, 20.06, 20.07, 20.08, 20.09, 20.10, 20.11, 20.12, 20.13, 20.14, 20.15,												

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
20.16, 20.17, 20.18												

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.			
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.			
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
(g) Where there is an in-slab heating or cooling system, the applicant must:  (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✓	✓	✓
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✓	✓	✓

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
S1704	44.1	7.6
S1705	56.2	10.0
S1707	25.6	10.0
S1801	48.4	7.9
S1802	58.2	6.1
S1803	66.0	6.7
S1804	64.7	9.5
S1805	42.1	10.6
S1806	43.4	10.6
S1807	57.5	10.6
S1809	30.6	14.1
S1810	36.5	13.3
19.16, 20.16	53.1	10.6
18.06, 19.06, 20.06	37.0	6.4
S1404, S1504, S1604	37.0	7.7
S1405, S1505, S1605	37.9	22.5
S1406, S1506, S1606	55.4	10.0
S1408, S1508, S1608	25.6	10.5
14.06, 15.06, 16.06, 17.06	64.9	5.6
S1401, S1501, S1601, S1701	38.2	9.7
S1402, S1502, S1602, S1702	49.5	6.8
S1403, S1503, S1603, S1703	58.2	7.5
S1407, S1507, S1607, S1706	24.5	10.0
S1409, S1509, S1609, S1708	44.4	10.5
14.12, 15.12, 16.12, 17.12, 19.12, 20.12	42.3	10.2

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
14.13, 15.13, 16.13, 17.13, 19.13, 20.13	43.9	9.2
14.14, 15.14, 16.14, 17.14, 19.14, 20.14	39.4	8.8
14.15, 15.15, 16.15, 17.15, 19.15, 20.15	56.3	10.9
14.17, 15.17, 16.17, 17.17, 19.18, 20.18	36.3	29.0
18.12, S1410, S1510, S1610, S1709, S1808	32.5	29.4
14.01, 15.01, 16.01, 17.01, 18.01, 19.01, 20.01	55.3	7.8
14.02, 15.02, 16.02, 17.02, 18.02, 19.02, 20.02	49.0	6.6
14.03, 15.03, 16.03, 17.03, 18.03, 19.03, 20.03	58.1	8.7
14.04, 15.04, 16.04, 17.04, 18.04, 19.04, 20.04	56.7	7.1
14.05, 15.05, 16.05, 17.05, 18.05, 19.05, 20.05	58.4	9.5
14.07, 15.07, 16.07, 17.07, 18.07, 19.07, 20.07	54.3	11.6
14.08, 15.08, 16.08, 17.08, 18.08, 19.08, 20.08	42.9	8.8
14.09, 15.09, 16.09, 17.09, 18.09, 19.09, 20.09	51.0	6.5
14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10	46.7	6.7
14.11, 15.11, 16.11, 17.11, 18.11, 19.11, 20.11	58.4	6.6
All other dwellings	26.9	31.2

**(b) Common areas and central systems/facilities**

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but ≤ 9 L/min)	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	14068	To collect run-off from at least: - 337.63 square metres of roof area of buildings in the development - 0 square metres of impervious area in the development - 0 square metres of garden/lawn area in the development - 0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 67.53 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Pool (No. 1)	Volume: 36.58 kLs	Location: Building1 Pool shaded: no	-

Central systems	Size	Configuration	Connection (to allow for...)
Spa (No. 1)	Volume: 2.25 kLs	Location: Building1 Spa shaded: no Spa cover: no	-
Fire sprinkler system (No. 1)	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Gym & Facilities	air conditioning system	time clock or BMS controlled	fluorescent	zoned switching	Yes
Basement Car Park Area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Basement Supply Fan Rooms	ventilation supply only	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Basement Exhaust Fan Rooms	ventilation exhaust only	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Lift car (No. 1)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 2)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 3)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 4)	-	-	light-emitting diode	connected to lift call button	Yes

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 5)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 6)	-	-	light-emitting diode	connected to lift call button	Yes
Lift Motor Room	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Switch Room	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Garbage Rooms	ventilation exhaust only	-	fluorescent	motion sensors	Yes
Garbage/Dirty Linen Rooms	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Residential Amenities	air conditioning system	time clock or BMS controlled	compact fluorescent	time clocks	Yes
Substation	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Plant Rooms	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
A/C Rooms	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Comms Rooms	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Cleaner Room	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	No
Mail Room	ventilation (supply + exhaust)	none ie. continuous	fluorescent	time clocks	Yes
Office Areas	air conditioning system	time clock or BMS controlled	fluorescent	motion sensors	Yes
Luggage Rooms	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	No
Toilets	ventilation (supply + exhaust)	time clock or BMS controlled	compact fluorescent	time clocks	Yes
Store Rooms	ventilation (supply + exhaust)	none ie. continuous	fluorescent	zoned switching	Yes
Ground Floor Lobby	air conditioning system	time clock or BMS controlled	fluorescent	time clocks	Yes
S.A Lobby	air conditioning system	time clock or BMS controlled	fluorescent	time clocks	Yes
Residential Lobbies/Corridors	ventilation (supply + exhaust)	time clock or BMS controlled	fluorescent	motion sensors	Yes

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 8
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 8
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 9
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 9
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 8
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 8
Pool (No. 1)	Heating source: gas	Pump controlled by timer: yes
Spa (No. 1)	Heating system: electric resistance	Pump controlled by timer: yes



#### 4. Commitments for common areas and central systems/facilities for the development (non-building specific)

##### (b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but ≤ 9 L/min)	4 star	5 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

## Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

## Legend

1. Commitments identified with a "✓" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✓" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✓" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Multi Dwelling

Certificate number: 556633M

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 29/06/2009 published by Planning & Infrastructure. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

Director-General

Date of issue: Thursday, 07 August 2014

To be valid, this certificate must be lodged within 3 months of the date of issue.



Planning &  
Infrastructure

### Project summary

Project name	V By Crown Certificate 4
Street address	45 Macquarie Street Parramatta 2150
Local Government Area	Parramatta City Council
Plan type and plan number	strata 61073
Lot no.	1
Section no.	-
No. of residential flat buildings	1
No. of units in residential flat buildings	109
No. of multi-dwelling houses	0
No. of single dwelling houses	0

### Project score

Water	✓ 44	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 20	Target 20

### Certificate Prepared by

Name / Company Name: WSP

ABN (if applicable): 47 005 113 468

# Description of project

## Project address

Project name	V By Crown Certificate 4
Street address	45 Macquarie Street Parramatta 2150
Local Government Area	Parramatta City Council
Plan type and plan number	strata 61073
Lot no.	1
Section no.	-

## Project type

No. of residential flat buildings	1
No. of units in residential flat buildings	109
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m²)	904.88
Roof area (m²)	600.24
Non-residential floor area (m²)	537.35
Residential car spaces	90
Non-residential car spaces	16

## Common area landscape

Common area lawn (m²)	0
Common area garden (m²)	44.34
Area of indigenous or low water use species (m²)	22.17

## Assessor details

Assessor number	100002
Certificate number	1006695397
Climate zone	56

## Project score

Water	✓ 44	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 20	Target 20

## Description of project

The tables below describe the dwellings and common areas within the project

### Residential flat buildings - Building1, 109 dwellings, 29 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
21.01	1	59.34	0.0	0	0
21.05	2	93.3	0.0	0	0
21.09	2	85.36	0.0	0	0
21.13	1	61.78	0.0	0	0
21.17	1	45.86	0.0	0	0
22.04	3	106.5	0.0	0	0
22.08	2	85.36	0.0	0	0
22.12	1	61.78	0.0	0	0
22.16	1	45.86	0.0	0	0
23.03	2	77.28	0.0	0	0
23.07	2	85.36	0.0	0	0
23.11	1	61.78	0.0	0	0
23.15	2	81.1	0.0	0	0
24.02	2	90.59	0.0	0	0
24.06	3	106.3	0.0	0	0
24.10	1	61.78	0.0	0	0
24.14	1	48.8	0.0	0	0
25.01	1	59.34	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
21.02	2	90.59	0.0	0	0
21.06	3	106.3	0.0	0	0
21.10	1	61.78	0.0	0	0
21.14	1	48.8	0.0	0	0
22.01	1	59.34	0.0	0	0
22.05	2	93.3	0.0	0	0
22.09	2	85.36	0.0	0	0
22.13	1	61.78	0.0	0	0
22.17	1	45.86	0.0	0	0
23.04	3	106.5	0.0	0	0
23.08	2	85.36	0.0	0	0
23.12	1	61.78	0.0	0	0
23.16	1	45.86	0.0	0	0
24.03	2	77.28	0.0	0	0
24.07	2	85.36	0.0	0	0
24.11	1	61.78	0.0	0	0
24.15	2	81.1	0.0	0	0
25.02	2	90.59	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
21.03	2	77.28	0.0	0	0
21.07	2	85.36	0.0	0	0
21.11	1	61.78	0.0	0	0
21.15	2	81.1	0.0	0	0
22.02	2	90.59	0.0	0	0
22.06	3	106.3	0.0	0	0
22.10	1	61.78	0.0	0	0
22.14	1	48.8	0.0	0	0
23.01	1	59.34	0.0	0	0
23.05	2	93.3	0.0	0	0
23.09	2	85.36	0.0	0	0
23.13	1	61.78	0.0	0	0
23.17	1	45.86	0.0	0	0
24.04	3	106.5	0.0	0	0
24.08	2	85.36	0.0	0	0
24.12	1	61.78	0.0	0	0
24.16	1	45.86	0.0	0	0
25.03	2	77.28	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
21.04	3	106.5	0.0	0	0
21.08	2	85.36	0.0	0	0
21.12	1	61.78	0.0	0	0
21.16	1	45.86	0.0	0	0
22.03	2	77.28	0.0	0	0
22.07	2	85.36	0.0	0	0
22.11	1	61.78	0.0	0	0
22.15	2	81.1	0.0	0	0
23.02	2	90.59	0.0	0	0
23.06	3	106.3	0.0	0	0
23.10	1	61.78	0.0	0	0
23.14	1	48.8	0.0	0	0
24.01	1	59.34	0.0	0	0
24.05	2	93.3	0.0	0	0
24.09	2	85.36	0.0	0	0
24.13	1	61.78	0.0	0	0
24.17	1	45.86	0.0	0	0
25.04	3	106.5	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
25.05	2	93.03	0.0	0	0
25.09	2	85.36	0.0	0	0
25.13	1	61.78	0.0	0	0
25.17	1	45.86	0.0	0	0
26.04	3	107.4	0.0	0	0
26.08	2	73.9	0.0	0	0
27.03	1	64.7	0.0	0	0
27.07	2	73.9	0.0	0	0
28.02	2	73.86	0.0	0	0
28.06	3	178.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
25.06	3	106.5	0.0	0	0
25.10	1	61.78	0.0	0	0
25.14	1	48.8	0.0	0	0
26.01	1	51.9	0.0	0	0
26.05	2	93.3	0.0	0	0
26.09	2	73.9	0.0	0	0
27.04	3	105.2	0.0	0	0
27.08	2	73.9	0.0	0	0
28.03	2	73.86	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
25.07	2	85.36	0.0	0	0
25.11	1	61.78	0.0	0	0
25.15	2	81.1	0.0	0	0
26.02	2	76.3	0.0	0	0
26.06	3	106.3	0.0	0	0
27.01	1	51.9	0.0	0	0
27.05	2	90.5	0.0	0	0
27.09	2	73.9	0.0	0	0
28.04	3	184.8	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
25.08	2	85.36	0.0	0	0
25.12	1	61.78	0.0	0	0
25.16	1	45.86	0.0	0	0
26.03	1	64.7	0.0	0	0
26.07	2	73.9	0.0	0	0
27.02	2	76.3	0.0	0	0
27.06	3	104.37	0.0	0	0
28.01	2	73.86	0.0	0	0
28.05	2	157.9	0.0	0	0

## Description of project

The tables below describe the dwellings and common areas within the project

### Common areas of unit building - Building1

Common area	Floor area (m²)
Gym & Facilities	25.81
Basement Exhaust Fan Room	22.47
Lift car (No. 3)	-
Lift car (No. 6)	-
Garbage Room	31.22
Substation	12.34
Plant Rooms	26.53
Store Rooms	59.99
Mail Room	4.54
Residential Lobbies/Corridors	1050.34

Common area	Floor area (m²)
Basement Car Park	3248.99
Lift car (No. 1)	-
Lift car (No. 4)	-
Lift Motor Room	16.15
Garbage/Dirty Linen Rooms	15.56
A/C Rooms	90.67
Cleaner Room	1.88
Toilets	8.00
Ground Floor Lobby	71.46

Common area	Floor area (m²)
Basement Supply Fan Room	19.42
Lift car (No. 2)	-
Lift car (No. 5)	-
Switch Room	12.69
Residential Amenities	65.97
Comms Rooms	14.17
Luggage Rooms	1.53
Office Areas	8.76
S.A Lobby	18.11

# Schedule of BASIX commitments

## 1. Commitments for Residential flat buildings - Building1

### (a) Dwellings

- (i) Water
- (ii) Energy
- (iii) Thermal Comfort

### (b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

## 2. Commitments for multi-dwelling houses

## 3. Commitments for single dwelling houses

## 4. Commitments for common areas and central systems/facilities for the development (non-building specific)

- (i) Water
- (ii) Energy



## Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

### 1. Commitments for Residential flat buildings - Building1

#### (a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✓	✓	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✓	✓
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✓	✓
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✓	✓
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✓	✓
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✓	✓	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✓	
(g) The pool or spa must be located as specified in the table.	✓	✓	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✓	✓	✓

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
21.11, 21.12, 21.13, 21.14, 21.15, 21.16, 21.17, 22.01, 22.02, 22.03, 22.04, 22.05, 22.06, 22.07, 22.08, 22.09, 22.10, 22.11, 22.12, 22.13, 22.14, 22.15, 22.16, 22.17, 23.01, 23.02, 23.03, 23.04, 23.05, 23.06, 23.07, 23.08, 23.09, 23.10, 23.11, 23.12, 23.13, 23.14, 23.15, 23.16,	3 star (> 7.5 but <= 9 L/min)	4 star	5 star	5 star	no	4 star	4 star	-	-	-	-	-	-	-

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
23.17														

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
21.01, 21.02, 21.03, 21.04, 21.05, 21.06, 21.07, 21.08, 21.09, 21.10, 24.01, 24.02, 24.03, 24.04, 24.05, 24.06, 24.07, 24.08, 24.09, 24.10, 24.11, 24.12, 24.13, 24.14, 24.15, 24.16, 24.17, 25.01, 25.02, 25.03, 25.04, 25.05, 25.06, 25.07, 25.08, 25.09, 25.10, 25.11, 25.12, 25.13,	3 star (> 7.5 but <= 9 L/min)	4 star	5 star	5 star	no	4 star	4 star	-	-	-	-	-	-	-

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
25.14, 25.15, 25.16, 25.17, 26.01, 26.02, 26.03, 26.04, 26.05, 26.06, 26.07, 26.08, 26.09, 27.01, 27.02, 27.03, 27.04, 27.05, 27.06, 27.07, 27.08, 27.09, 28.01, 28.02, 28.03, 28.04, 28.05, 28.06														

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
All dwellings	central water tank (no. 1)	See central systems	See central systems	yes	no	no	no	no
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	interlocked to light	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
21.04, 21.06, 22.04, 22.06, 23.04, 23.06, 24.04, 24.06, 25.04, 25.06, 26.04, 26.06, 27.04, 27.06, 28.04, 28.06	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
21.01, 21.05, 21.10, 21.11, 21.12, 21.13, 21.14, 21.16, 21.17, 22.01, 22.05, 22.10, 22.11, 22.12, 22.13, 22.14, 22.16, 22.17, 23.01, 23.10, 23.11, 23.12, 23.13, 23.14, 23.16, 23.17, 24.01, 24.10, 24.11, 24.12, 24.13, 24.14, 24.16, 24.17, 25.01, 25.10, 25.11, 25.12, 25.13,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no



	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
25.14, 25.16, 25.17, 26.01, 26.03, 27.01, 27.03												

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
21.02, 21.03, 21.07, 21.08, 21.09, 21.15, 22.02, 22.03, 22.07, 22.08, 22.09, 22.15, 23.02, 23.03, 23.05, 23.07, 23.08, 23.09, 23.15, 24.02, 24.03, 24.05, 24.07, 24.08, 24.09, 24.15, 25.02, 25.03, 25.05, 25.07, 25.08, 25.09, 25.15, 26.02, 26.05, 26.07, 26.08, 26.09, 27.02,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	1-phase airconditioning EER 3.5 - 4.0 (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
27.05, 27.07, 27.08, 27.09, 28.01, 28.02, 28.03, 28.05												

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	3.5 star	3 star	2 star	no	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.			
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
(g) Where there is an in-slab heating or cooling system, the applicant must:  (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✓	✓	✓
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✓	✓	✓

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
21.13	54.50	10.7
24.04	40.50	8
24.05	37.00	6.4
25.04	40.50	8.00
25.11	65.90	8.50
25.13	49.1	9.4
26.01	45.30	10.20
26.02	52.70	9.80
26.03	45.80	12.70
26.04	43.70	8.20
26.07	44.90	8.40
26.08	45.20	9.50
26.09	54.90	9.60

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
27.01	59.20	10.50
27.02	36.60	10.90
27.03	61.80	13.90
27.04	29.90	10.90
27.05	20.20	7.70
27.06	35.60	30.80
27.07	34.60	8.70
27.08	34.30	10.10
27.09	44.30	10.00
28.01	56.80	12.70
28.02	51.70	13.70
28.03	50.00	11.00
28.04	35.80	17.20
28.05	24.40	8.20
28.06	34.00	16.70
24.01, 25.01	56.10	8.10
24.02, 25.02	50.40	6.60
24.03, 25.03	59.70	8.50
24.07, 25.07	52.80	6.10
24.08, 25.08	48.40	6.60
24.09, 25.09	60.20	6.60
24.10, 25.10	58.90	10.70
24.12, 25.12	60.20	9.10
24.14, 25.14	63.20	9.00
24.15, 25.15	46.70	10.10
24.16, 25.16	62.40	31.70
24.17, 25.17	64.70	28.10

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
25.05, 26.05	37.00	6.40
21.01, 22.01, 23.01	56.1	8.1
21.02, 22.02, 23.02	50.4	6.6
21.03, 22.03, 23.03	59.7	8.5
21.04, 22.04, 23.04	40.5	8.0
21.05, 22.05, 23.05	37.0	6.4
21.06, 22.06, 23.06	47.9	12.5
21.07, 22.07, 23.07	52.8	6.1
21.08, 22.08, 23.08	48.4	6.6
21.09, 22.09, 23.09	60.2	6.6
21.10, 22.10, 23.10	58.9	10.7
21.12, 22.12, 23.12	60.2	9.1
21.14, 22.14, 23.14	63.2	9.0
21.15, 22.15, 23.15	46.7	10.1
21.16, 22.16, 23.16	62.4	31.7
21.17, 22.17, 23.17	64.7	28.1
22.13, 23.13, 24.13	54.5	10.7
24.06, 25.06, 26.06	47.90	12.50
All other dwellings	65.9	8.5

**(b) Common areas and central systems/facilities**

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but ≤ 9 L/min)	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	9237.2	To collect run-off from at least: - 221.69 square metres of roof area of buildings in the development - 0 square metres of impervious area in the development - 0 square metres of garden/lawn area in the development - 0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 44.34 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Pool (No. 1)	Volume: 24.02 kLs	Location: Building1 Pool shaded: no	-

Central systems	Size	Configuration	Connection (to allow for...)
Spa (No. 1)	Volume: 1.48 kLs	Location: Building1 Spa shaded: no Spa cover: no	-
Fire sprinkler system (No. 1)	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Gym & Facilities	air conditioning system	time clock or BMS controlled	fluorescent	zoned switching	Yes
Basement Car Park	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Basement Supply Fan Room	ventilation supply only	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Basement Exhaust Fan Room	ventilation exhaust only	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Lift car (No. 1)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 2)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 3)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 4)	-	-	light-emitting diode	connected to lift call button	Yes



	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 5)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 6)	-	-	light-emitting diode	connected to lift call button	Yes
Lift Motor Room	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Switch Room	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Garbage Room	ventilation exhaust only	-	fluorescent	motion sensors	No
Garbage/Dirty Linen Rooms	ventilation (supply + exhaust)	-	fluorescent	manual on / manual off	No
Residential Amenities	air conditioning system	time clock or BMS controlled	compact fluorescent	time clocks	Yes
Substation	no mechanical ventilation	-	fluorescent	manual on / manual off	No
A/C Rooms	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Comms Rooms	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Plant Rooms	ventilation exhaust only	thermostatically controlled	fluorescent	manual on / manual off	No
Cleaner Room	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	No
Luggage Rooms	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	No
Store Rooms	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	Yes
Toilets	ventilation (supply + exhaust)	time clock or BMS controlled	compact fluorescent	time clocks	Yes
Office Areas	air conditioning system	time clock or BMS controlled	fluorescent	motion sensors	Yes
Mail Room	ventilation (supply + exhaust)	none ie. continuous	fluorescent	time clocks	Yes
Ground Floor Lobby	air conditioning system	time clock or BMS controlled	fluorescent	time clocks	Yes
S.A Lobby	air conditioning system	time clock or BMS controlled	fluorescent	time clocks	Yes
Residential Lobbies/Corridors	ventilation (supply + exhaust)	time clock or BMS controlled	fluorescent	motion sensors	Yes

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 11
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 11
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 12
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 12
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 12
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 11
Pool (No. 1)	Heating source: gas	Pump controlled by timer: yes
Spa (No. 1)	Heating system: electric resistance	Pump controlled by timer: yes

#### 4. Commitments for common areas and central systems/facilities for the development (non-building specific)

##### (b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but ≤ 9 L/min)	4 star	5 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

## Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

## Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).